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# Cinematographer

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THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY  
THEATRICAL • TELEVISION • 16mm COMMERCIAL • AMATEUR

Last person checking name  
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Making a dolly shot for "Red Skies of Montana," photographed by Charles G. Clarke, A.S.C.

**THIS  
MONTH**

- Color Correction — What It Means
- Integrating Film and Live Action for TV
- Shooting Home Movie Interiors

**SEPTEMBER  
1951**



# *On location with Du Pont Film...*



## *Superlative performance of "Cyrano" ... recorded on Du Pont "Superior" 2*

*"Cyrano de Bergerac"*—the magnificent Stanley Kramer production released in November, starring José Ferrer, Mala Powers, William Prince and Ralph Clanton—is another of the year's outstanding pictures made on Du Pont Motion Picture Film.

In the off-stage still above, Director Michael Gordon (lower right) surveys the battlefield set-up for one of the choice scenes. At the camera finder is Frank Planer, A. S. C.—the man responsible for the excellent photography that made the picture an instant success and earned for him the Hollywood Foreign Correspondents Association "Golden Globe"

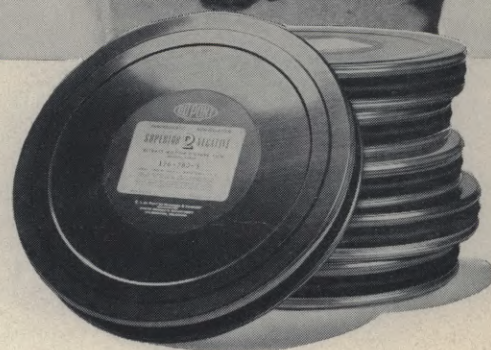
Award for best black and white photography in 1950.

Du Pont "Superior" 2 is widely used by leading cinematographers because as an all-purpose negative rawstock it records faithfully the artistry of high- or low-key lighting technique. E. I. du Pont de Nemours & Co. (Inc.), Photo Products Dept., Wilmington 98, Delaware.

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BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY



**DU PONT**  
**MOTION PICTURE**  
**FILM**



*"a* **RUGGED** *camera..."*



Gene and Charlie Jones, NBC-TV's famous twin team, examine one of their Bell & Howell "70" cameras in a Korean forward area.

## NBC's newsreel men prove B&H cameras under fire

In the thick of the Korean action from the very beginning, the Jones Brothers have sent NBC-TV some of the finest War pictures ever filmed, including many exclusives. These movies were filmed under exceedingly tough and dangerous conditions. In fact, when Gene Jones was wounded in the chest at the Inchon invasion, he had to inch his way back to the beachhead through hundreds of yards of severe fire . . . protecting the pre-

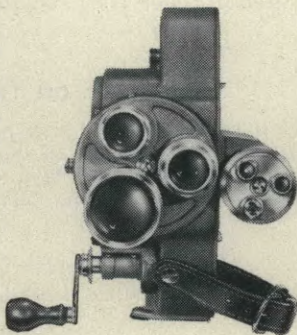
cious film in his B&H "70" for NBC-TV *News Caravan* viewers.

Here's what the Jones Twins say about their Bell & Howell Cameras in a letter to Robert McCormick of NBC: "... We try to ship or shoot 500 feet per day. The Bell & Howell is a rugged little camera. Both of ours have been damaged in combat . . . but we've managed to have them repaired by Signal Corps people."

### Features of the New B&H 70-DL

*3-Lens Turret Head* for instant lens change; *Critical Focuser* permits precise focusing through the lens; *Viewfinder Turret* rotates positive viewfinder objectives to match lenses on lens turret; *Powerful Spring Motor* operates 22 feet of film on one winding . . . maintains speed accurately throughout film run; *Hand Crank* for short double exposures, other trick effects and unlimited film run; *7 Film Speeds* include 8, 12, 16 (normal), 24 (sound), 32, 48 and 64 (true slow motion) frames per second; *Film Plane Mark* for accurate focusing measurement; *Parallax Adjustment* corrects from infinity to 3 feet; *Eye-piece* focuses for individual sight variations . . . increases illumination to the eye up to 600%. Complete with 1" f/1.9 lens only, \$369.95.

*Price subject to change without notice*



*You buy for life  
when you buy*

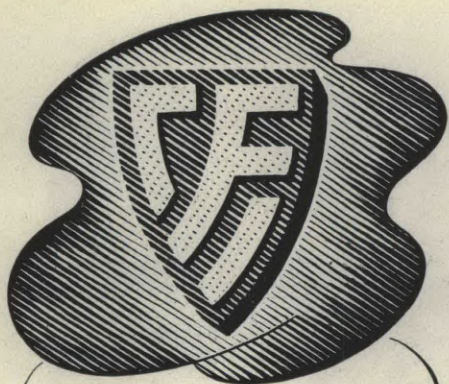
**The Bell & Howell "70"** camera is indeed a "rugged" camera. But that isn't the only reason why it is the favorite of professionals and ambitious amateurs. This camera is designed to make the highest quality movies, yet can be carried anywhere . . . either hand held or set up in a matter of seconds to shoot under the most adverse conditions.

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HOLLYWOOD, CALIF.

AMERICAN

# Cinematographer

THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY

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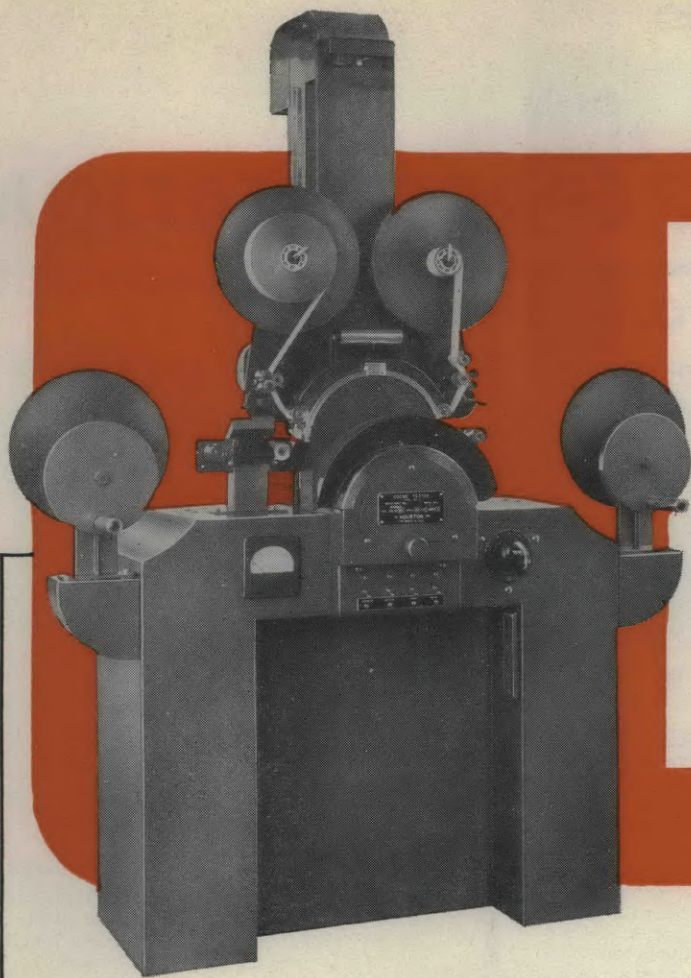
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### ON THE COVER

TWENTIETH CENTURY FOX camera crew, under direction of Charles G. Clarke, A.S.C., makes a dolly shot in the wilds of Montana during recent location filming of scenes for "Red Skies Of Montana"—saga of parachuting forest-fire fighters.—*Photo by Anthony Ugrin.*

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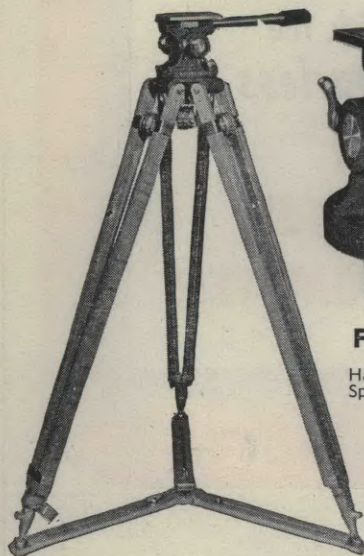


# Announcing

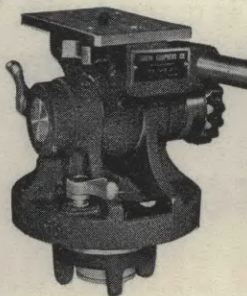
## WEST COAST REPRESENTATION

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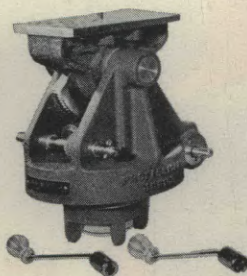


Friction Type Head  
on Standard Tripod Base and  
Collapsible Adjustable Metal Triangle



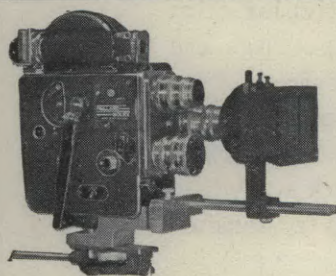
#### FRICITION TYPE

Handles 16mm. EK Cine Special with or without motor; 35mm. DeVry; B&H Eyemo with motor and 400' magazines and all 16mm. hand-held cameras. Head is interchangeable with the Gear Drive head. Both types fit "Professional Junior" standard tripod base, "Hi-Hat" and "Baby" all-metal tripod base.



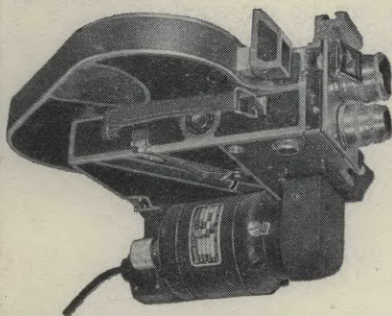
#### GEAR DRIVE

The head, made of Dow Metal magnesium, weighs but 5 1/2 lbs. and is interchangeable with the Friction type head. It handles all types of cameras. Snap-on metal cranks control pan and tilt action from both sides. Worm-driven gears are Gov't spec. bronze.



#### SUNSHADE & FILTER HOLDER COMBINATION

For use with Bolex and Cine Special 16mm. cameras. Holds two 2" sq. glass filters and 2 1/2" round Pola Screen with handle which can be rotated for polarization. Covers all lenses from 15mm. to 6" telephoto and eliminates need for various filters. Precision made of the finest materials. Compact, simple to assemble and dismount. May be permanently affixed to camera or quickly detached.



#### SYNCHRONOUS MOTOR DRIVE

110 Volt A. C., Single Phase, 60 Cycle

This motor will run in synchronization with either 16mm. or 35mm. sound recorders. It is provided with mounting platform which permits removal of magazine while camera remains mounted on motor.

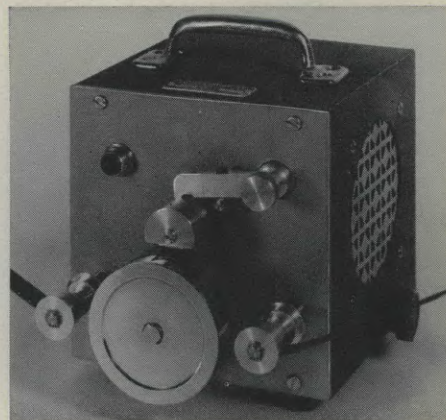
Drive coupling attaches to single-frame shaft of camera and is mated to spring-steel drive arm of motor gear box. This assures that camera mechanism cannot be damaged if a film jam occurs as the spring steel arm drive will shear. This is easily replaced.

A knurled knob on motor armature permits rotating for threading. "On-Off" switch built into base. Platform base threaded for 1/4" and 3/8" camera tie-down screws. Rubber covered cable with plugs included.

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#### Model for Magnetic Film and Tape

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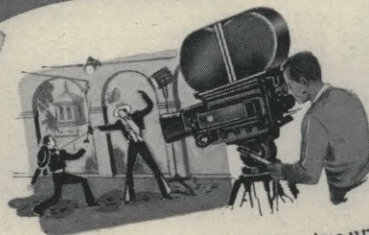
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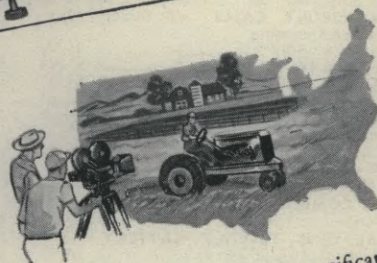
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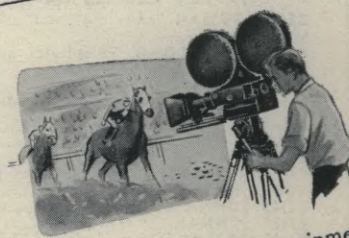
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BELL & HOWELL EYEMO, "71 Q," Turret, 35mm	\$775.00
BELL & HOWELL EYEMO, Model K.	\$275.00
BELL & HOWELL 70 DA 16mm. x 100' capacity	\$225.00
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(Many other types of Simplex, Holmes, de Vry, Bell & Howell, Ampro, Victor, RCA, and other 35mm and 16mm projectors in stock.)	
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HOUSTON K-1A (SIMILAR TO MODEL 11) 16mm automatic film processing unit. Each step controlled for proper exposure and solution temperature; self-contained unit requiring no extra equipment; processes black and white, negative, positive, or reversal at speeds up to 20' per minute. Like New	\$3,450.00
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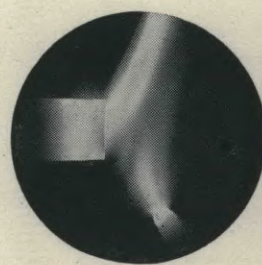
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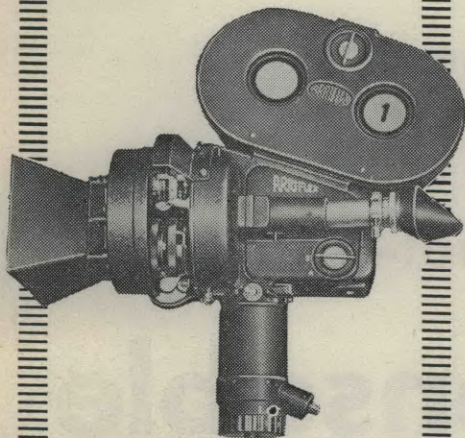
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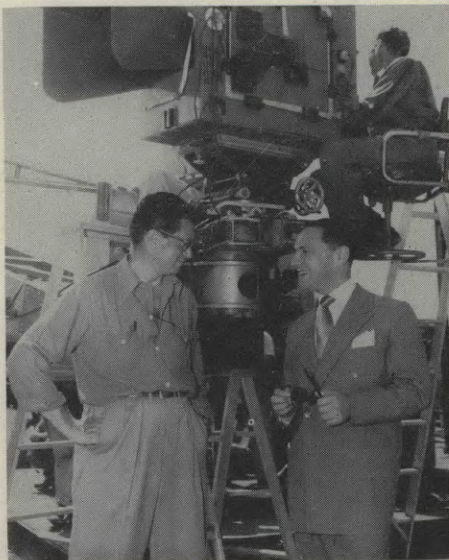
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# Hollywood Bulletin Board

September 15 is date American Society of Cinematographers will host its members and their wives at annual "Ladies Night Dinner and Dance." Function this year will be a super Hawaiian luau to be held in gardens of A.S.C. clubhouse in Hollywood. Cooperating this year with Fred W. Jackman and his program committee is Eddie Blackburn of J. E. Brulatour, Inc., a regular among frequent visitors to Hawaii, who will lend his knowledge of the islands' food and festivities in the planning of the A.S.C.'s big annual event.

Joseph Walker, A.S.C., is slated to direct the photography of Judy Holliday's second starring picture for Columbia Pictures, set to start early in September. Meantime, Walker has been active with the production of his Electra-Zoom lenses for TV cameras, which are now in regular use in major TV studios across the nation.

I. Rozemberg, Brazilian cinematographer and film producer, was a Hollywood visitor last month. Rozemberg, who produces short subjects and newsreels for Brazil theatres and photographs documentary films for the Brazilian government, has been studying Hollywood production methods with the object of re-organizing and expanding his produc-



I. ROZEMBERG, Brazilian cinematographer (right), chats with director of photography Maury Gertsman, A.S.C., on set of U-I's "Son Of Ali Baba."

ing company. While in Hollywood he observed cinematographic methods at Universal, Metro Goldwyn Mayer,

Columbia, Warner Brothers, Walt Disney and Paramount studios.

Upon his return to Rio de Janeiro, Rosenberg plans to launch his first color film production, using Ansco Color.



Tony Gaudio

Gaetano (Tony) Gaudio, pioneer Hollywood cinematographer of more than 1000 films and winner of the 1936 Academy Award for photography, died August 9th at his home in Burlingame, California.

A former member of the American Society of Cinematographers, he served as its president from 1924 to 1925. Gaudio came to the U. S. from his native Italy in 1906 to head the old Vitagraph company's film lab in New York City. He went to Hollywood in 1911 to reorganize the camera department for Universal Pictures. He subsequently moved over to Warner Brothers studios where he photographed the studio's top stars, including Bette Davis and Greta Garbo.

Gaudio is survived by his wife, Marie, and two sons—Frank, also a cameraman, and Antonio, a San Francisco lawyer.

John Arnold, A.S.C., head of MGM's camera department, and who has been carrying on extensive research with a new type of studio lamp for reflected light, has several of the units in use on MGM sound stages at the present time. Bid advantage of lamp's use, says Arnold, is elimination of sharp shadow defini-



tion. Lamp received its initial test on MGM's "Rain, Rain Go Away," soon to be released.

The photography of "A Place In The Sun," Paramount production directed by George Stevens, former cameraman, and photographed by William Mellor, A.S.C., is garnering accolades wherever it is shown. Looks like a good bet for one or more Academy Award nominations.

Karl Freund, A.S.C., this month, announces a greatly expanded program for his Photo Research Corporation in Burbank, Calif. Until now exclusively a manufacturer of technical photographic equipment, including the well-known Spectra color temperature meter, Freund's company will now act as west coast sales distributor for several important eastern manufacturers, including Camera Equipment Company, Precision Laboratories, and others.

Harry Stradling, A.S.C., lost an opportunity to win a Venice Film Festival award for the photography of "Streetcar Named Desire," last month when that picture was withdrawn from competition as result of what was reportedly "pressure by American moralist groups." Picture, as yet unreleased in America, is a superior job of cinematography.

"Process shots, trick photography, stunt work and other such production secrets should not be shared with the general public," declared the Perlberg-Seaton Company last month, when it tacked "No Visitors" signs on its sound stages at Paramount. Besides lessening interference with production, the company feels that the ban is a safety measure, stating that Hollywood too long has been giving away its secrets—spoiling its illusions.

R.K.O. Studio has joined the march in converting from photo to magnetic sound. Company has completed installation in its dubbing rooms of latest RCA magnetic recording equipment, and has acquired portable recording equipment for use on locations.

John Boyle, A.S.C., drew the first assignment at Warner Brothers for shooting a feature picture using that company's recently developed color process. Title of picture is "Carson City." Warners is third Hollywood studio presently developing its own color film process. Others are Metro Goldwyn Mayer and 20th Century-Fox. The respective systems employ one or the other of presently available color negative films—Ansco or Eastman.

# AURICON

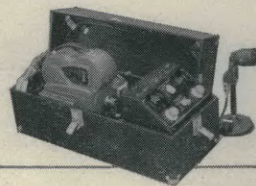
## 16 mm Sound-On-Film

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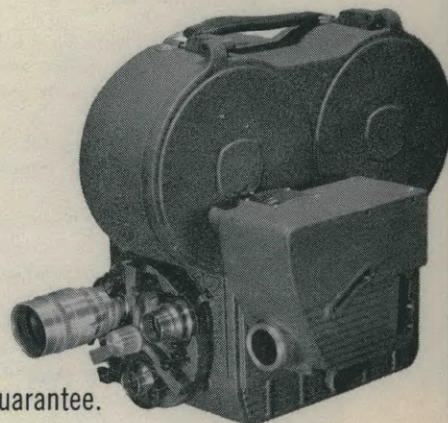
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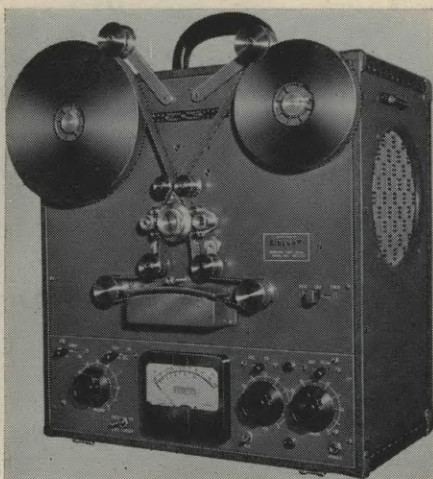
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# Out Of This World..!

Unusual photography makes real the jungle and the antediluvian monsters of "Lost Continent," Lippert Pictures' action-fantasy thriller staged and photographed almost entirely indoors.

By HERB A. LIGHTMAN

SCIENCE-FANTASY films, perhaps more than any other type of picture, depend upon top grade art direction, special effects and photography in order to successfully create an illusion. Judged on this basis, "Lost Continent" measures up as one of the best of the current "out of this world" cycle.

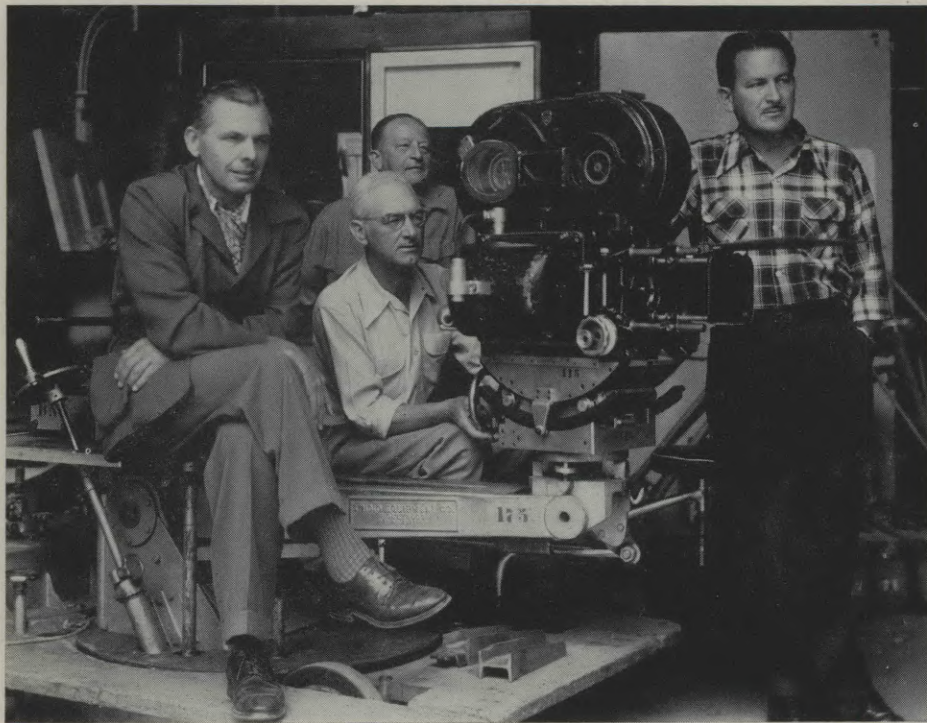
Produced by Lippert Pictures, Inc., "Lost Continent" follows strongly the action-fantasy pattern set by the same studio's phenomenally successful "Rocketship XM." Like its predecessor, "Lost Continent" is rich in apparent production value, the result of careful pre-planning and the shrewdest use of elements calculated to give the vehicle scope and authenticity.

Competently acted and directed, the film owes much of its visual impact to

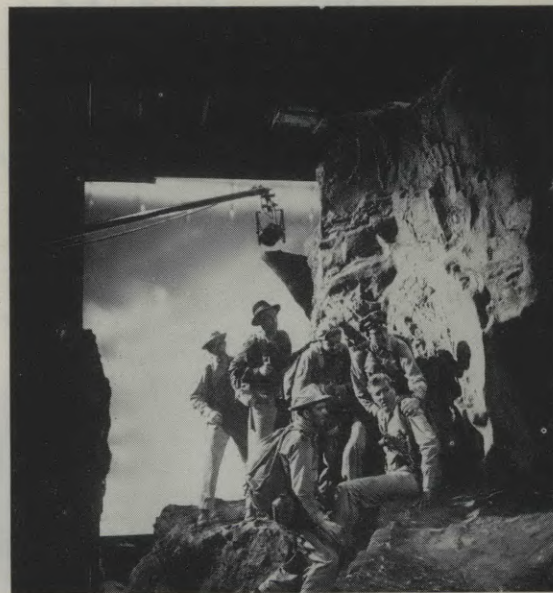
the production design of F. Paul Sylos, the special effects of Augie Lohman, and the cinematography of Jack Greenhalgh, A.S.C. In fact, it is the photographic treatment more than any other element that lifts "Lost Continent" far above most films of its type. The versatile, mood-filled score by Paul Dunlap—which includes a haunting beguine, a sophisticated piano concerto, and every impressionistic music for a lost world—comes in for the very highest praise as a contributing factor to the overall excellence of the film.

The plot concerns a group of Atomic Energy Commission scientists who launch a 100-foot atom-powered rocket into the stratosphere. When the rocket fails to return, they set out to find it in an Air Force C-47 transport. The plane, mys-

teriously "demagnetized," crashes on a jungle island, where its occupants learn from the natives that the rocket has crashed beyond a forbidden mountain in territory from which "none ever came back."



JACK GREENHALGH, A.S.C. (left) directed the photography of Lippert Pictures' "Lost Continent." Production was staged and shot on sets erected at Goldwyn Studios, Hollywood. Assisting him was Ernie Smith, operator; Bennie Coleman, assistant; and Georgie Breslau, gaffer. Camera was mounted on a crane or dolly for every shot.



AIM of cameraman Greenhalgh was to create feeling of jungle vastness within limited confines of sound stage. Sets covered two connecting stages.

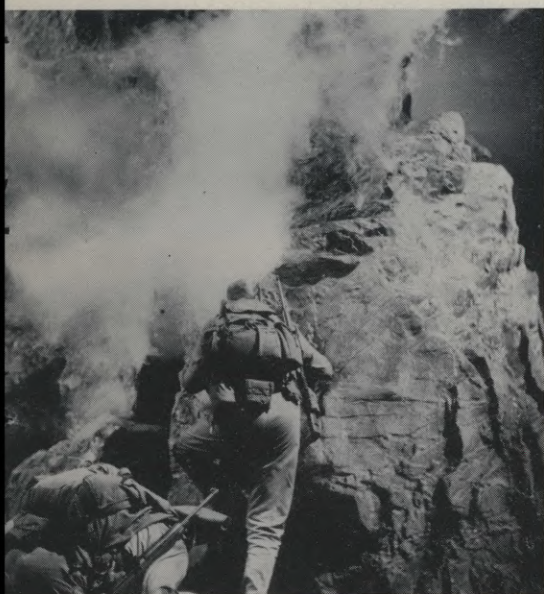
The scientists and Air Force men have a series of hair-raising adventures while climbing the mountain, and when they reach the top they find themselves in a weirdly unreal world, said to be a "lost continent" or throwback to a prehistoric age. After bouts with a brontosaurus, a giant pterodactyl, a triceratops and other outsize fauna of the antediluvian age, they find the rocket and manage to detach its recording unit—then flee down the mountainside and into outrigger canoes just as a violent earthquake cuts loose and the entire island blows up.

The success of such science-fantasy depends upon the creation of appropriately every mood—and Jack Greenhalgh's



photography scores heavily in this department. In discussing the problems involved in photographing the film, Greenhalgh explains: "Our aim was to create a feeling of vastness within the limited confines of the sound stage. Also, we had to give the 'lost continent' sequence a mood of ominous fantasy, while still preserving a strong enough link with reality to convince the audience that these were situations that could and did actually happen to characters in the script."

To enhance this illusion, there was built on the huge stages of the Goldwyn Studios a conventional jungle (pre-



CAMERA was mounted on a huge boom here to permit it to rise with actors as they climbed up face of sheer cliff. Dry ice vapor simulated mountain fog.

sumably at the foot of the mountain), a 50-foot rockbound peak scored with caves and chasms, and a ghostly "lost continent" jungle characterized by weird plants and rock formations. These sets covered two connecting stages, and in one sequence the camera pulls back from one stage, through the connecting arch and rises in a boom shot as the party starts up the mountain.

The camera was mounted on a boom throughout much of the filming in order to rise with the actors as they climbed from one level to another up the face of the cliff. Hydraulic light stands that could be mechanically raised and lowered allowed the lights to rise with the camera. In one sequence, these stands made it possible for the lights to be lowered very slowly in order to simulate the effect of the sun going down. In addition, a 25-foot electrically controlled parallel was used to raise the camera and crew to various levels for filming of scenes high up on the mountain peak.



ARC LIGHTING was used primarily throughout the production to produce simulated moonlight and brilliant sunlight. Here, survivors of crashed rescue plane unexpectedly encounter huge prehistoric monster in depths of Lost Continent's jungle.

The mountain itself was a masterpiece of construction. Fashioned of materials strong enough to simulate actual rock and support the weight of seven actors clambering upward, it was mounted on rollers so that it could be wheeled around to provide a variety of set-ups and camera angles. It is a tribute to Greenhalgh's lighting skill that the 50-foot segment of man-made rock could be used as a background for a climb supposedly covering several thousand feet of mountainside. In most cases a shifting of the lights plus a fresh camera angle made a previously photographed segment of terrain appear completely different. Clouds photographed on transparencies were projected on a huge screen behind the rock, creating a realistically luminous sky effect.

In one sequence, the characters climb above the clouds, emerging from the swirling whiteness to find themselves on a high plateau. These clouds were created by filling a huge cage with dry ice and blowing the vapor onto the stage. The scene where one of the scientists falls off the rock and goes plunging through this cloud to his death is executed with jolting realism.

For the climatic sequence of the film, when the scientists are menaced by an earthquake, two huge segments of terrain, complete with native huts were mounted on rolling platforms and wrenched apart to show the earth splitting open. The camera was shaken at

the same time to complete the effect. A segment of jungle was built around the special effects tank at the Goldwyn Studios to show the scientists taking to canoes just before the island blows up. Palm trees were wired so that they could be made to come crashing down at the water's edge. A compound ordinarily used in swimming pools to control algae was dumped into the tank to give the effect of sea water. The bottom of the pool had previously been painted a deep aqua shade. Machine-made waves completed the illusion.

Arc light was used primarily throughout the film to produce simulated moonlight and sunlight. The ruggedness of this lighting, realistically in key plot requirements, contrasts sharply with the glossy "glamour" lighting of earlier sequences set in the ultra-moderne apartment of a streamlined charmer. Special mention should also be made of the excellent combination of camera and cutting that goes to produce the strikingly realistic plane crash.

"Lost Continent" marks the 212th film photographed by Jack Greenhalgh since he became a Director of Photography in 1935. Having built a reputation for working very rapidly while turning out top quality photography, Greenhalgh explains that the result is mostly a product of proper pre-planning.

"After years of trial and error experience in filming all types of subjects,

(Continued on Page 377)



# To Promote The Sale of Chinaware...

... we produced a unique documentary film that shows the process of making English bone china in one of England's oldest porcelain works.

By JOHN R. STEWART, A. R. P. S., M. B. K. S.

**J**UST COMPLETED in England and soon to be shown on 16mm in the United States is a documentary of more than usual interest. Called "The Doctor Ordered Clay," it tells mainly the story of how English Bone China is made at the 200 year old Worcester Royal Porcelain Works. But it tells a good deal more than that.

Although some of the manufacturing processes, especially perhaps the potter's wheel, are ideal cinema material, china itself is not cinematic. To hold attention throughout a twenty-five minute film was a problem.

Human interest, excitement, humor—these are the ingredients for a successful

film. Fortunately they were all at hand. Founder of the Worcester Royal Porcelain Company in 1751 was a colorful personality—Dr. John Wall—the "Doctor" of the title. A brilliant physician, in the spare time which somehow he found for himself, he painted pictures good enough to be exhibited at the Royal Academy.

Most important moment in the life of Dr. Wall was his meeting with William Davis, Worcester Apothecary. These two men decided to start in Worcester the making of china. This event was re-enacted for our film.

For the exterior of the Apothecary's shop, a genuine old house in Worcester

was stripped of modern attachments such as mail boxes, bell pushes and front door numbers and the name William Davis painted over the window. The interior was reconstructed in the studio, using many genuine antiques as "props," including a Bristol porcelain sauceboat, valued at 200 guineas, from which Dr. Wall may have got his first ideas on making china.

As a wealthy man, the Doctor inevitably suffered from the attention of highwaymen. Twice he was attacked and robbed when returning home at night after visiting patients. Here was excellent film material, and one of these incidents was re-enacted near to the actual



**AUTHOR** Stewart, using a Newman-Sinclair camera, prepares to shoot a scene for "The Doctor Ordered Clay," 25-minute documentary on manufacture of English bone china. Most props used here are genuine antiques.



**FILM** includes scenes showing detail of the fine hand painting that characterized the decoration of porcelain 150 years ago, and still followed today.





PREPARING to do a tracking shot in the packing department of the Worcester Royal Porcelain Works. Main illumination is from daylight coming through skylight overhead, and augmented by photo lamps.



A GENUINE old house in Worcester, England, was modified to represent the shop of an Eighteenth Century apothecary. Note the incongruous mixture of the "No Parking" sign with the old costumes.



PREPARING the outdoor set for the "Bull in a China Shop" scene. Rooftop stage afforded use of sunlight for illumination. Photo lamps furnished fill light.



THE SCENE as it appeared from behind the camera. It was easier to move camera to the farm, erecting China Shop set there, than bringing bull into city studio. The china used in scene were "rejects."

spot where it took place 200 years ago.

But the present day has its exciting moments too. Men have long talked of "a bull in a china shop" to describe somebody creating havoc and chaos. For "The Doctor Ordered Clay" it was determined to find out what would really happen if a bull were turned loose in a shop stacked with china. Apart from the fun of finding out, there was a logical reason for the inclusion of such a scene in the film. English china is nearly half ox bone. It is natural therefore that a bull should not feel too friendly towards china shops.

To build a china shop set actually on the farm was easier, and safer, than transporting a one-ton bull to the studio. Stacked with a thousand pieces of reject china, the "shop" at last waited for its

one and only customer. Reporters and photographers, sensing the news value of such an incident, were there in strength. Local sightseers were warned by the village policeman that they stayed at their own risk. Last minute checks were made to lights and trip wires, then our two cameramen, using wide angle and long focus lenses, signalled they were ready.

As the bull, "Madresfield Champion," was slowly led to the set by farm hands, the atmosphere was electric. Would the set, doubly reinforced by stout beams, stand up against the charge of a possibly frightened bull? Would the barricades, now seeming very frail, keep the onlookers and technicians in safety? What would the bull really do as china smashed to fragments all round him?

Rarely has there been such an anticlimax. Once on the set with the farm hands on the opposite side of the barriers, Madresfield Champion stood still and slowly surveyed the china. Then, stepping carefully over trip wires with the grace of a ballet dancer, he carefully selected and chewed half a dozen advertising leaflets from the counter. "Ferdinand!" yelled someone from the crowd.

Cameras were stopped while the farm hands came on the set and walloped the bull with sticks. Down came a few plates. It took nearly twenty minutes of alternate goading and throwing china to break even half the pieces in the shop. Only one thing remained to be done. "Ferdinand's" girl friend, Rosebud, a prize cow was led to the set. For a mo-

(Continued on Page 376)



# Color Correction—What It Means

Are you one of those who believe "color-corrected" lenses are something exclusively for color photography? Here this much misunderstood term is explained in detail by a prominent optical engineer.

By ALLEN E. MURRAY

Scientific Bureau, Bausch & Lomb Optical Company

*BECAUSE the term "color-corrected lens" is often misunderstood by professional as well as amateur photographers, we believe the following article—perhaps the most lucid ever written on the subject—will clarify the meaning for many of our readers. It was originally published in INTERNATIONAL PROJECTIONIST for June, 1951. We are indebted to IP's editor for permission to reprint it here.—EDITOR.*

COLOR-CORRECTION in lenses is not a new wrinkle introduced as a consequence of the growing popularity of color film. Lens designers and opticians have been laboring over color-corrections since the first lenses were assembled into optical systems. The term "color-corrected" is not so profound that, like, "abracadabra" or "open sesame," it should become a conjurer's word to call up the perfect lens. "Color-corrected" to the optical designer and optician has a very definite meaning, much as it may have been corrupted to include application to almost any type of lens.

A color-corrected lens, in the language of the designer, is one satisfying two rather stringent specifications, and no lens failing to fulfill these two requirements can fairly be called "color-corrected."

Historically, unwanted color in images was recognized very early, and constituted one of the first challenges to the lens designer's skill. The researches aimed

at discovering the whys and wherefores of this annoying color led to a better understanding of lenses in general, and to new glasses, and even today are not completed.

The state of the color-corrections in a lens system is fundamental in the performance of the system and constitutes one of the first considerations in design. The subject is rather complicated, as

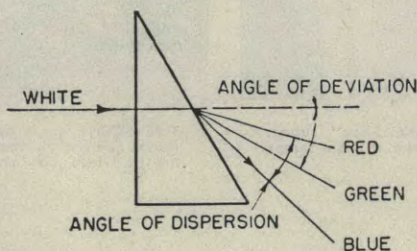
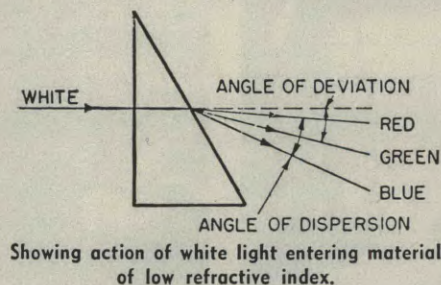


FIG. 2—Comparison of dispersion of red and blue light.

there are in reality two distinct color aberrations the designer must eliminate before he is entitled to say that his system is color-corrected.

But before we undertake to amplify this statement, we must refresh our memories with a few facts of how light behaves.

Light travels in a vacuum at the astounding rate of 186,000 miles per second: that is, all light is conjectured to do so—blue, yellow, red, infra-red, etc.—it all skips merrily along at this

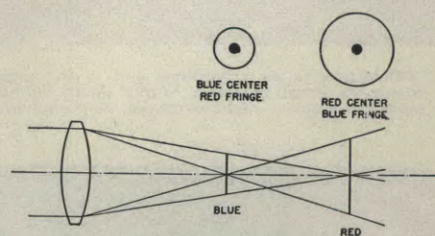


FIG. 3—Since refractivity of glass is greater for blue than for red, blue light will focus at a point nearer lens than will the red.

dizzy rate in empty space.

But something happens to this light when it reaches a region filled with a more tangible substance. What happens is exactly the same thing that occurs when a train hits a snow bank, or a football player enters a broken field: a reduction of speed. At the boundary of the optically denser medium, the light beam is bent, or refracted, if the angle at which the beam hits the denser medium is other than 90°.

Specifically, as Fig. 1 shows, on entering a medium in which the speed is less, the beam of light is bent toward the normal, an imaginary line perpendicular to the surface. The reverse is true on leaving.

The crux of the color effects is that in spite of the fact that all colors are transmitted through empty space with the same velocity, they insist upon being treated differently when traveling through ponderable matter. In glass, for instance, red light will travel about 3,000 miles per second faster than blue light. This speed differential has as its consequence the greater bending of the blue light over red light, causing the dispersion shown in Fig. 2.

In the design and manufacture of photographic objectives, several different types of glass are used whose basic action is illustrated in Fig. 2. One type is of low index of refraction, *i.e.*, it retards light little in passage. This glass, in

(Continued on Page 366)

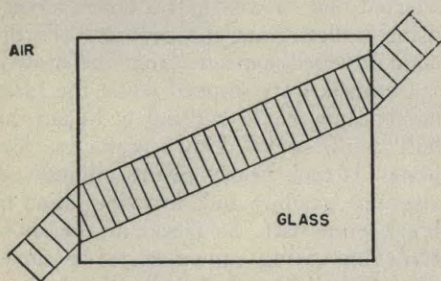


FIG. 1—Showing how beam of light is bent or refracted as it enters and leaves a denser medium.



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# Duke University Makes Own Teaching Films

Over 20,000 feet of 16mm medical movies filmed to date.

By EARL PORTER

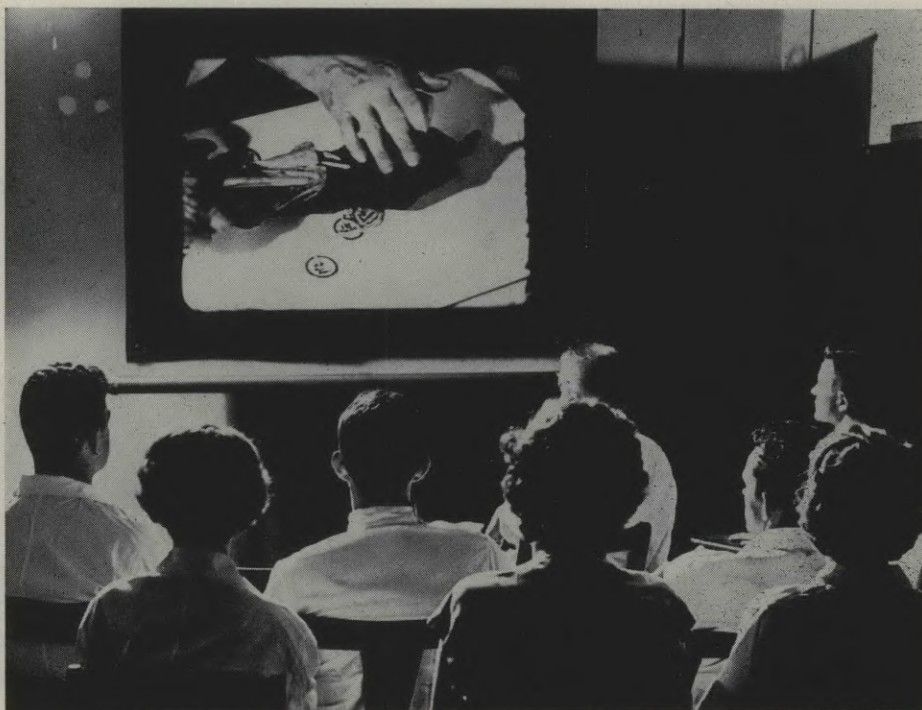


DIRECTING Duke University's medical movies production unit is Dr. J. E. Markee who has pioneered in medical visual aids for twenty years. "Secret of our films," says Dr. Markee, "is in the editing. We leave out the dramatic details and sound effects."

THERE AREN'T any searchlights and no free flowers for the ladies, but Duke University doctors hold a gala movie premier at least once a year. Movie making is under full steam at Duke's School of Medicine, and the price of admission is included in the medical student's tuition. The impresario is Dr. Joseph E. Markee, a director without a beret or sunglasses, and a man not given to sudden bursts of artistic temperament. He's simply a hard-working professor of anatomy who has been pioneering in medical visual aids for 20 years.

Duke's movie makers have produced more than 20,000 feet of 16mm teaching film and more than 600 colored slides to show with it, enough for about 60 full-hour shows. Here's the way it works:

**DUKE'S MOVIES** make medical education move faster. Future doctors get a preview of tomorrow's work in the laboratory, at same time hear recorded lecture that accompanies film.



Students in anatomy get a movie preview of each quarter's work before classes begin. They see on the screen all the details of the human body, how various muscles and tendons work, structures they'll be studying for the rest of their medical lives.

Then they begin regular classes and laboratory work. Meanwhile, the full-length film is divided into little 20-minute short subjects, one of the upper arm, another the lower arm and so on.

During the rest of the course they take advantage of continuous movie showings from 1 p.m. to 5 p.m. daily and drop in several times a week for refresher sessions on what they've been studying. Each time they'll pay special attention to a short subject on today's work or get another preview at what's coming up tomorrow.

Before Duke's movies are finished, Dr. Markee and his staff describe all that's going to be shown and record it on a sound track that will be broadcast with the movie. This means that while 20 or so students are looking at movies, Dr. Markee and his staff can be busy with another 20 in the laboratory. Two years later, when the students take their national examinations, they come back for a review and see the complete show again.

Other doctors are enthusiastic movie fans too. Orthopedists, surgeons and nose and throat specialists come in for special shows that illustrate detailed relationships between various parts of the body. The nurses need the movies too, especially those who work in the operating room. Physical and occupational therapists are also frequent visitors.

Here's what the movies do at Duke:

(Continued on Page 377)



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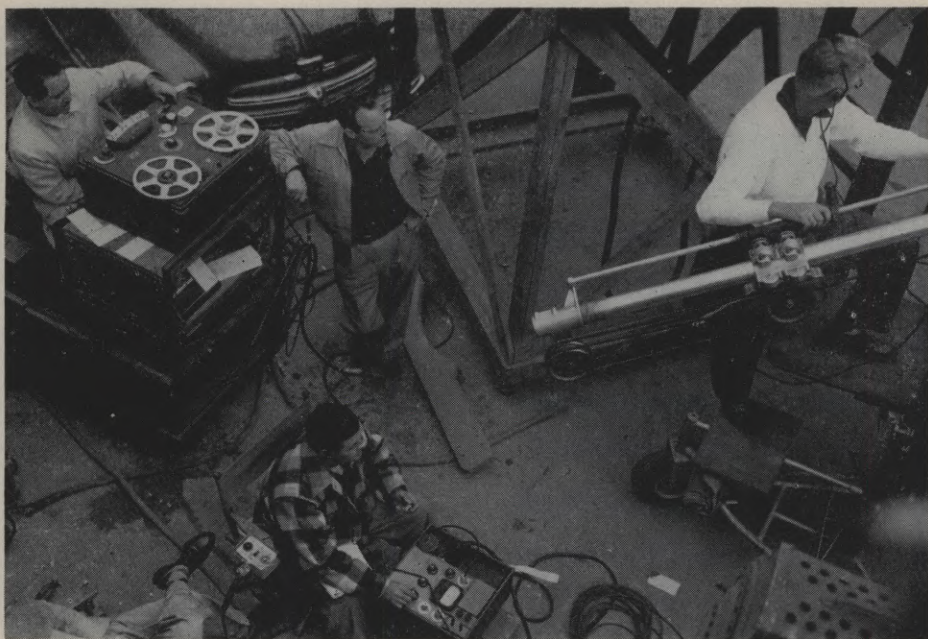


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RANGERTONE magnetic tape recording equipment in use during production of Eagle-Lion's "The Hoodlum." Here sound is being recorded on a street scene on the studio lot. Track later was edited with picture film, using the Cue-Editor pictured below.

## Rangertone Sprocketless Magnetic Tape Recorder

**Magnetic pulses, recorded as separate control signal on tape, keep recording in sync with picture film.**

By R. H. RANGER

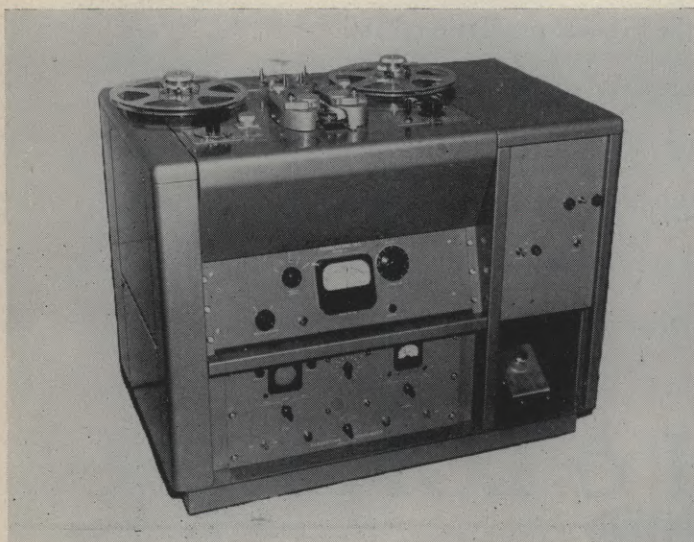
*Rangertone, Inc., Newark, N. J.*

WHEN RANGERTONE pioneered in the magnetic recording of sound for motion pictures, the field was wide open to select the most favorable magnetic medium. Trials were made with sprocket-hole magnetic film, but the inherent quality and economy of standard quarter-inch magnetic tape indicated such a decided spring-board, that all energy was soon concentrated in this field.

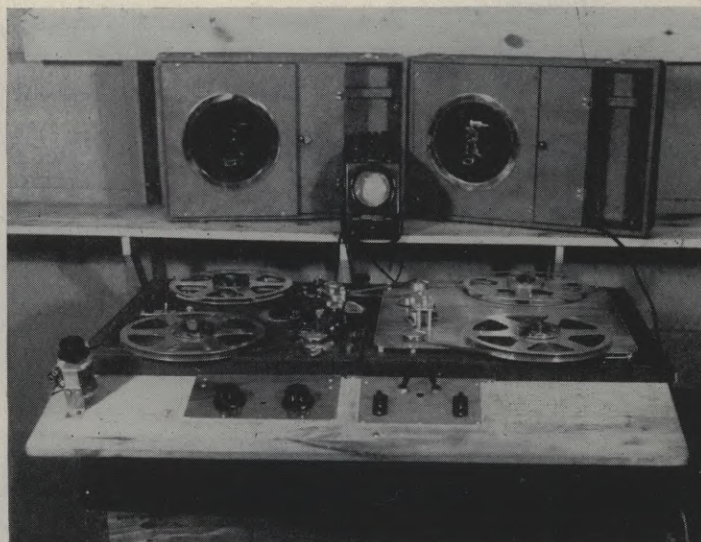
Naturally, quarter-inch tape only a mil and a half thick cannot support actual perforated sprocket holes, but with Rangertone recording system they are there as invisible magnetic pulses registered as a control track down the center of the tape during shooting with the camera. These pulses come from the same sixty cycle power that drives the synchronous motor on the camera. Thus an accurate record of the camera speed is recorded on the tape, along with the sound—as a separate track—ready to be used on playback to hold the tape movement in strict accord with the film motion in the re-recorder or projector. The magnetic pulses are on the tape at right angles to the normal sound recordings so that they do not interfere with the latter in any way. Furthermore, they do not need to be put on during the registry of the sound, but may be put on later. This makes the system a natural for post synchronous recording, when the sound track is pre-scored and the track is played back while the cameras are doing the shooting of the actors who are miming the sound. In other words, the control pulses are always put on the sound track when the camera is recording the scene photographically.

Right from the start, the system has proven its worth, as was amply demonstrated for top musical quality on "The Tanglewood Story," which Larry Madi-

*(Continued on Page 371)*



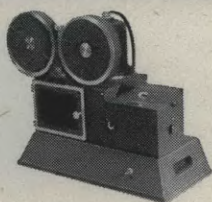
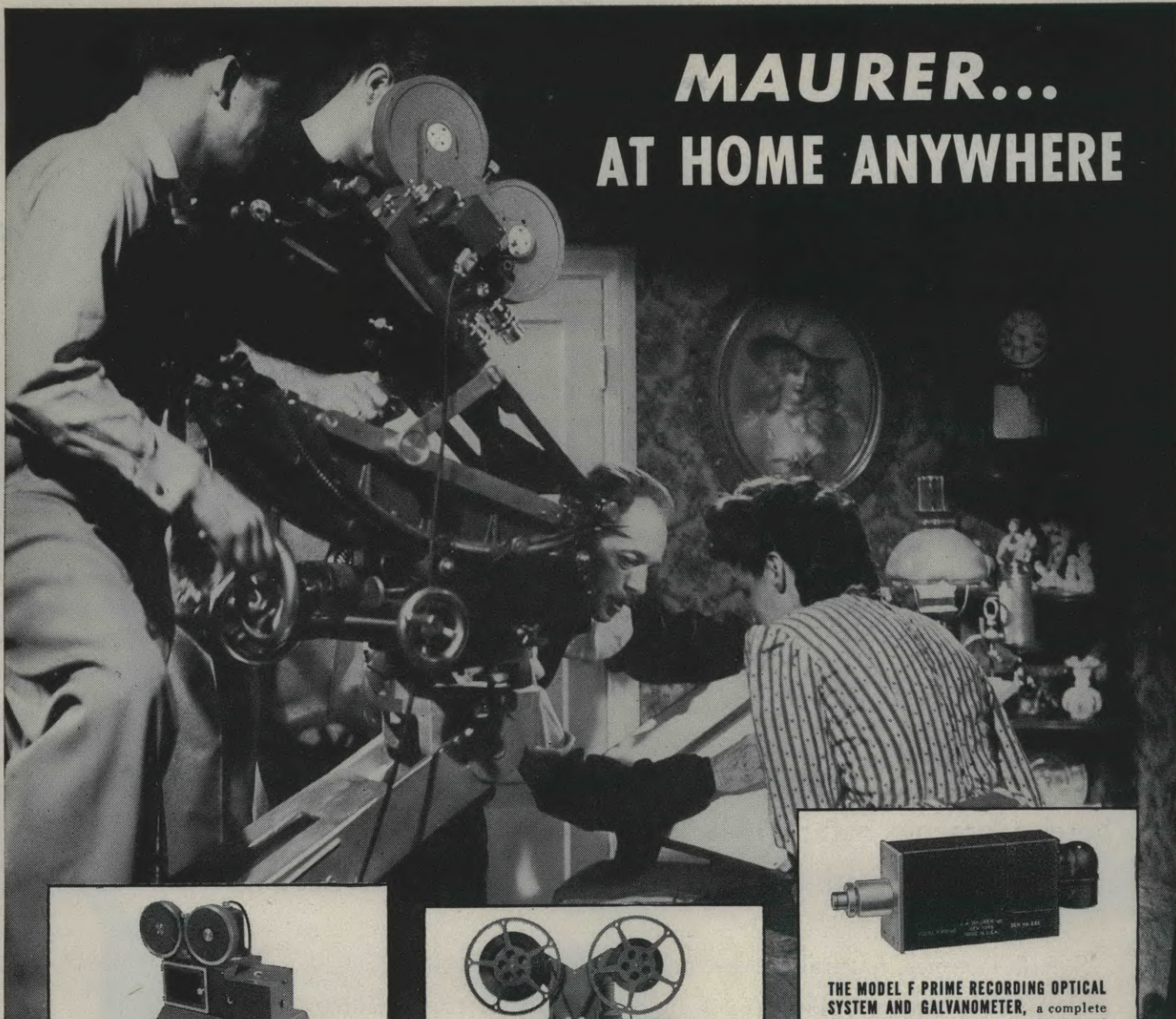
COMPLETE synchronous record and playback Rangertone magnetic tape console. Using ordinary sprocketless 1/4-inch tape, control signal that keeps tape in sync is recorded simultaneously with sound.



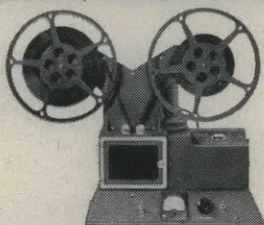
CUE EDITOR is a double-tape playback unit which handles two tapes synchronously, moving either forward or backward. With this unit editor consolidates good takes in one single track.



# MAURER... AT HOME ANYWHERE



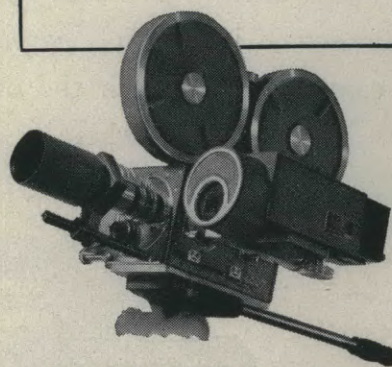
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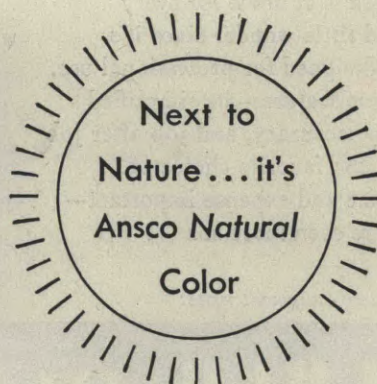


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SHOOTING a scene for "The Big Story" which later was integrated with live action scenes staged in the television studio. Directed by Charles E. Skinner, film scenes were photographed by cameraman George Webber.

PROPER coordination between cameraman, lab and TV lighting personnel insures successful integration of filmed scenes with live action says Charles E. Skinner, shown here at far left directing a scene for "The Big Story."

# "Integration" Pioneer

By CHARLES E. SKINNER

*Reprinted from "The Screen Director," publication of the Screen Director's Guild, New York City, N. Y.*



**Film and live action are integrated  
with outstanding success in the production  
of "The Big Story" for television.**

**A**LREADY FAMILIAR enough to hold a place in the world of the facile cliché, today's arguments in the great debate on "Film versus Live Action in Television" can be looked upon as an inevitable development in a period of raucous transition. Among the arguments one hears is that film can't be integrated with live-action without the TV audience's being painfully aware of where the film leaves off and the live action begins. After more than two years of integrating film with live action on Bernard Prockter's "The Big Story," I submit that this just "ain't necessarily so."

Indeed, so many people, even experienced film men in Hollywood, have paid so much attention to the question

of which parts of our show were on film and which parts were live action that I sometimes have wondered whether anyone cared whether the program was any good dramatically. (The continuing popularity of "The Big Story" on Friday nights would seem to prove that this was a needless worry.) Our success in cutting from live to film and back again in the middle of dramatic action and dialogue leads many people to believe that the entire show is on film.

Since there are factors in our successful film-live matching that we do not care to disclose, I shall not dwell on our methods in detail, but I would like to describe some of the paths we took in meeting the problems of integration.

I would like to say right off that there

is no great mystery about our success with integration: the balance in cutting from live to film and back again is dependent on a technique which does not ignore, as do so many television shows, the all-important art of motion picture editing.

Anyone who plans to integrate film with live action is faced immediately with the bugaboo of poor film reproduction on television. But this problem can be solved if the proper coordination is developed between film cameraman, laboratory and TV lighting personnel. In addition to the usual film reproduction bugaboo, we had another problem: Our type of story had to integrate and match cuts, even to closeups, from film to live and from live to film. This was absolutely necessary if we were to be successful in meeting the challenge put to us by Sullivan, Stauffer, Colwell & Bayles, agency handling the account of Pall Mall Cigarettes. After three successful years with "The Big Story" on radio, Pall Mall, they said, was interested in putting the "Story" on TV—pro-



vided we could prove, with a pilot film, that the show could be visually as dramatic and believable as the radio story had been. All important in the test was whether we could produce visually the feeling of being "on the spot" with the reporters in the various cities represented—a quality which had contributed so much to the success of this well documented radio series.

This challenge was made to us shortly after Bernard J. Prockter, who at that time was exclusively a radio producer, had employed me to direct a film for another TV show he had in mind. Mr. Prockter placed "The Big Story" in my hands dramatically as well as production-wise, and we faced immediately a major problem: the problem of "conversion." Before going further into the discussion of integration I would like to examine briefly this question of conversion.

Now much has been said pro and con about the conversion of entertainment stories from one medium to another. There was much criticism over the conversion of radio stories into film stories, and today there are some who say that the adaptation of radio stories to television will cause TV standards to drop to the low standards of some radio programming. This is a point that is being carefully studied by sponsors and agencies with successful radio properties under consideration for TV adaptation.

It is true that conversion of many radio programs to TV would be a mistake. But if care is taken in the type of material selected for conversion, and if experienced visual writers, adapters and directors are given the duties of making the conversion, there is no reason why many extremely valuable radio properties could not become successful television shows.

This is not to say that people can't be "converted" along with the material. Clients, agencies and personnel who handle the many facets of televising can make the transition as well. There is, I submit, a common ground on which the experienced visual man can translate his production terms and procedure so that those needed to "convert" with a program can quickly grasp the radical demands of a visualized program in sharp contrast to radio. There are those who scoff at this procedure—who say that each field will be better off if its own trained people stick to what they know and don't express their opinions in the other field. But we would do well to recall a similar attitude once existed between movies and the theatre, each thinking the other incapable of working in its field, with a resultant loss for each. I can say for myself that if I can consider as a yardstick my two years at televising with a "converted" program, with its

(Continued on Page 379)

## New All-purpose Film Leader Benefits TV Film Producers

By LEIGH ALLEN

**A** NEW TYPE film leader for motion picture prints is being made available to all producers and film laboratories by the Society of Motion Picture and Television Engineers. Use of the leader will eliminate "blind" switching of telecast films and will permit synchronous threading of all 16mm projectors. It will not upset established theater practice because the new design, which makes several special provisions for television use, is based upon the familiar Academy leader.

Excellent results have been reported following a six-month period of testing under supervision of SMPTE in which well over 10,000 prints have been made and used. The new leader has been endorsed by several television broadcasters and by the New York Projectionists' Local. Widespread use on prints for theater as well as for television projection is now urged by the Engineers.

C. L. Townsend, writing in the Journal of the SMPTE for May, 1951, stated "The New York Offices of several television companies have been using the new leader on their television recording releases and on certain other television films."

The familiar American Standard Z22.55-1947 is the foundation for the new leader design. Only additions have been made, and only such additions as cause no deletion of past features.

The main body of the leader ahead of the three-foot mark is changed from a solid black to an appropriate simple pattern (see illustration). The design is intended to be used in television to permit checking system operation before switching into the first picture frame.

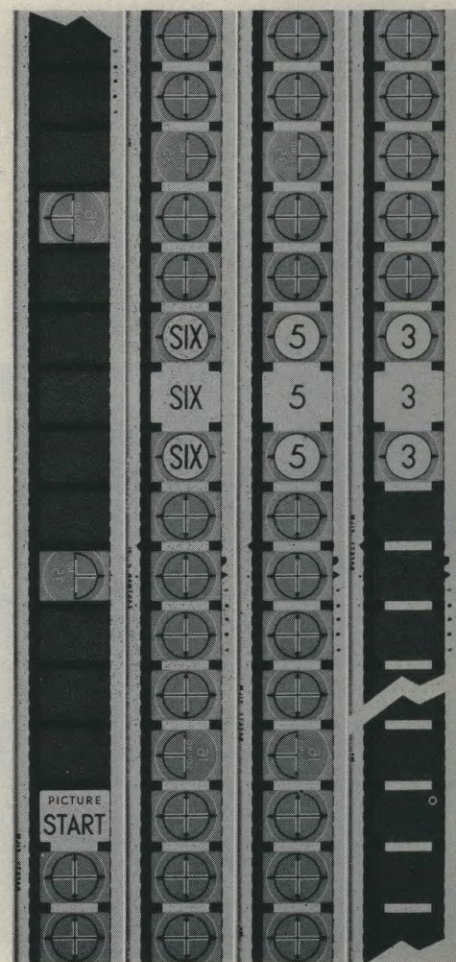
The footage numerals have been changed to project right side up. It has been found that precise television program switching has caused these numerals to become of great value to program directors. Right side up projection makes them easier to read. The "Six" and "Nine" markers are spelled out to insure against confusing the two.

The picture threading frame for each 35mm foot is identical with the old leader, consisting of a full white background with black numerals overlaid. The 35mm sound threading marks have

been changed to read in plain English "35mm Sound," replacing the previously used diamond mark. Added are 16mm sound threading marks which define the sound scanning position for that service. The leader also offers protection against mis-threading 16mm projectors.

Additional changes include a change of the familiar black frames following the three-foot marker. These have been given a dark grey tone. This is advantageous for television in that it will permit TV operations to switch into the dark frames without as much flare and black spots as now occur. Also, a small switching cue (see illustration, third frame above lower left-hand corner)

(Continued on Page 377)



SAMPLE FOOTAGE from new SMPTE film leader for 16mm and 35mm motion picture prints. Broken edges indicate duplicate frames have been deleted.



## Is Organization The Answer?

In this sequel to his July article, Alvin Roe discusses reader reaction to his "collective" film making idea and cites a new and interesting plan adopted by movie makers in England.

By ALVIN D. ROE

**W**E PURPOSELY omitted last month the "sequel" to our article in the July issue which dealt with "The Amateur Today," in order that we might have opportunity to receive and evaluate reader reaction. Some of it has been very interesting, and we presently shall quote from letters received from several amateur movie makers whose work generally is well known among the nation's cine cameraists.

In the July article, we stated that evidence showed a steady slowing down of interest on the part of American amateur movie makers, and suggested that what was needed was for amateurs to work collectively instead of singly, which would lead to better picture making, more consistent working in the hobby, and therefore more sustained interest—with the individual cine amateur deriving greater enjoyment from making movies.

Said George Kirstein, of Parkchester,

New York: "Your article in the July issue has touched a soft spot in my makeup, and I feel impelled to add a few words.

"To begin with, the story and article are so true! I personally have been through both phases—the outstanding club which collectively made films, and the present void of non-activity. The club in question has since passed into oblivion. Today, with television and other interests taking a large share of the cine amateur's time, many old clubs of organized amateur movie makers have—as your article stated—slipped by the wayside. The advanced amateur who still desires to make serious pictures and work with others is faced with having to organize a new club and endure that phase of endless bickering over the constitution, officers, the showing of mediocre films (family snapshots badly exposed and focused, etc.) which has been the common pattern of forming of

many cine clubs in the United States.

"If American Cinematographer can stir up some interest that will bring about the development of more progressive clubs on the order of the Long Beach (Calif.) Cinema Club, and others like it here in the U. S., it will be of immense benefit to the hobby."

Ralph E. Gray, a stalwart among the rugged individualists who has been a lone worker—and a darn good one, too!—since he first began shooting movies years ago, says: "If the grouping of talent, as suggested, will get more people interested, well and good." He further reports that for some time groups of advanced cine amateurs have been working together in producing serious films in several cities that he has visited on his lecture tours. He mentions a Cancer film produced by a group in New Jersey; the film "Paths To Safety," produced by the Movie Makers Club of Oklahoma City, as well as collective filming projects being undertaken by amateur groups in Miami, Florida, and St. Louis, Missouri.

Gordon Malthouse, editor of the highly regarded *Amateur Cine World*, published in London, wrote: "I was very interested in Alvin D. Roe's article in your July issue. I endorse much of what he says, but there are other important aspects so far as the European amateur film movement and its relations with the American are concerned . . . There seems to be a greater appreciation in Britain than in America of the value of securing general circulation for amateur films so that they reach the public as well as the closed circle of amateurs. We also have the encouragement of our Government-sponsored British Film Institute, and in other European countries official patronage is evident." Mr. Malthouse has kindly offered to write an article on this subject for a future issue of AC.

In the meantime, we note in the July and August issues of Mr. Malthouse's

(Continued on Page 373)



MANY British amateur groups are organized as "production units," much the same as professional film companies. Thus, besides the cameraman, there are always enthusiastic assistants to serve as script clerk, director, prop boy, grip, etc. This makes for expeditious and more finished productions, with all sharing the screen credits.





TWO SPOTS and a fill light illuminate scene above from "Let's Go Places," produced by Metropolitan Motion Picture Club, New York. Actually, only center light (right) illuminates set, lighting girl's back and hair and reflecting light from mirror to her face.



## Lighting Home Movie Interiors

**Success of indoor photography depends upon the  
filmer's knowledge of basic lighting principles.**

By LEO J. HEFFERNAN

*Photographs By The Author*

INTERIOR LIGHTING is "all in the mind" of the movie maker; it has to be that way or no good will come of indoor filming.

Lighting know-how is mainly an accumulation of do's and don'ts culled from one's own experience or from the experiences of other cameramen. In a way, each lighting setup is an experiment. Invariably the lights must be moved around until a desired effect is obtained. These adjustments bring about a refinement in lighting technique by creating pleasing balance between high-lights and shadows; nevertheless a filmer's training should enable him to approach an interior scene with a clear idea of the general position which each of the main lights is to occupy.

The reason why location of the main lights must be determined in advance is that a definite mood is desirable in the screen picture—that is where artistry

comes in. The picture has already been planned, and so the lights are set up only after the cameraman has formed an idea of what he wants to produce in the way of lighting effects. It is not simply a matter of directing enough light on the scene to illuminate the players and the set; he can do better than that. In common with Rembrandt and other acknowledged masters of light and shade, he will be guided by instinct and the utilization of good taste. There will be much arranging, re-arranging, scrutinizing, and changing, before each light is placed where it will do the most good.

Have you noticed that, in professional photoplays, extravagant lighting frequently occurs in sequences where the story action takes place in a home? Shots of cozy living rooms, boudoirs and dens are given special treatment by the lighting technicians because of the presence there of home lamps, candelabra, fire-

places, and other sources of natural lighting. When these are included in a scene as apparent sources of room lighting, they may be used as a basis for strongly directional lighting and eye-catching effects which would appear bizarre, otherwise. It is a happy circumstance, therefore, that most of the interior shots likely to be filmed by an amateur moviemaker are scenes inside a home. What could be simpler? All he has to do is include a table lamp or a floor lamp in the scene, replace the household bulb with a No. 1 photoflood bulb and, Presto! he has furnished himself with a springboard for many lighting ideas. The motivating question will then be, "How must I light the scene so as to make it look as if the main light were coming from this lamp?"

The best approach to interior lighting lies in the study of lighting effects found

*(Continued on Page 369)*



## COLOR-CORRECTION—WHAT IT MEANS

(Continued from Page 354)

general, will retard blue only slightly more than the red.

At the other extreme are the glasses of high index, in which the velocity of light is lower, and this in turn means a greater angle of deviation whereby the blue is affected much more than the red, so that the angular dispersion is greater.

Sir Isaac Newton, who founded much of optics as we now know it, from his

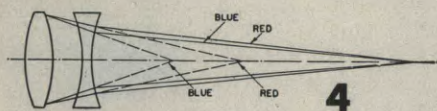


FIG. 4—How two lenses are combined to bring light of any two colors to a common focus.

extensive experience with the glass prisms of his day, concluded erroneously, that dispersion is always proportional to the deviation and that, as a consequence, achromatic combinations are impossible. Sir Isaac committed one of his rare mistakes in concluding that achromats are impossible and that the reflecting telescope is the best answer to the color problem.

Not long after Newton's death, the first achromats were made in England by combining a positive crown and negative flint lens to produce the basic type of achromatic doublet.

We have seen in Fig. 2 that a ray of light, upon passage through a prism, is bent, or deviated, in the direction of the base. This is essentially the fundamental reason for the action of lenses of all kinds. The curved surfaces act like an assembly of an infinite number of small prisms, deviating each ray striking the surfaces sufficiently to bring it to a re-

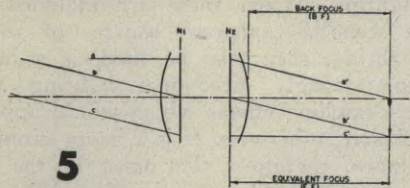


FIG. 5—Cardinal points can be looked on as points on the lens axis at which the refractive powers of the lenses or lens system are concentrated.

union, real or virtual, with the other rays forming the image.

A positive lens will *converge* parallel rays to a real focus; while a negative lens will *diverge* parallel rays, making them act as if they came from a point, the virtual focus.

From what was said previously concerning dispersion, it is apparent that

any simple lens cannot have one definite, fixed focal point for all light. Since the light-bending power, or refractivity, of glass is greater for blue than for the red, the blue light will focus at a point nearer the lens than the red, this situation is illustrated in Fig. 3. This is the simplest and most readily grasped type of chromatic aberration, and usually the first corrected.

In practice, this longitudinal chromatic aberration will mean that there is no one focal point on the axis but several, depending on the color of the light used. A photograph made with a simple positive lens would show a large shift from visual focus to photographic, even with panchromatic negative material. The "chemical focus" of the old-time photographers was of this nature.

A perfect lens cannot be made, and even in the best lenses, there remains a very small residual of this aberration, so that when a color-blind emulsion responding only to the blue is used, a shift towards the lens is usually necessary—the so-called "chemical focus." This effect is familiar also to those who have used infra-red sensitive emulsions in their

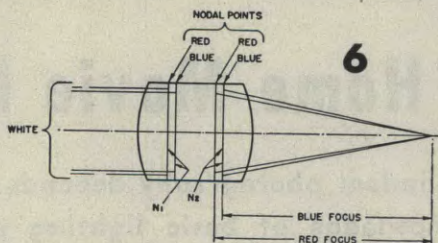


FIG. 6—Where red and blue colors unite in one focal point on the axis, and nodal points in the two colors are different, automatically the lens must have different focal lengths in the two colors.

cameras: for best results, it is usually necessary to rack the lens out a trifle.

A further result of this irresolution of focal points is the situation shown in Fig. 3, where at the blue focus the red rays create a red disc, and at the red focus the blue rays create a blue halo. A point object could hardly be photographed as a point under these conditions.

This axial chromatism is not difficult to correct and, as noted before, is given high priority. The secret lies in the relation of dispersion to deviation. Consider for a moment a simple positive lens as shown in Fig. 3. The marginal rays have been deviated toward a focus, and at the same time because of the dispersion of the glass, the red and blue rays are aimed at different points on the axis.

Now, everything would be perfect if there existed an optical material with a given amount of dispersion and no re-

fractive power, for then correction could be effected with a plane parallel sheet of this wonderful material. Actually, the only practical material for this task is a glass which has a fortuitous relationship of refractivity to dispersion such that the dispersion will effectively cancel that of the positive lens while the refractivity is insufficient to cancel completely the convergence of the positive lens.

The lens component effecting this achromatism is negative, as shown in Fig. 4, and must have higher refractivity and dispersion than its positive mate.

This combination, then, will bring light of any two colors to a common focus

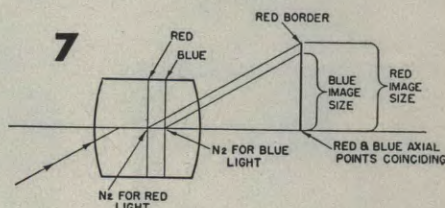


FIG. 7—Example of chromatic differences of magnification, or lateral color.

on the axis. The other colors will focus at points practically identical with the chosen colors. Thus this lens would give a color-free star image on the axis.

The other type of chromatic aberration is a bit more difficult to understand. It is somewhat more complicated both to explain and to show in a drawing. Some of us may recall mention in our reading concerning optics of certain things called "cardinal points," "ideal planes," etc. These points and planes are convenient ways of describing the properties of lens systems and are indispensable to the lens designer.

Briefly, these cardinal points can be looked on as points on the lens axis at which the refractive powers of the lenses or lens system are concentrated. The cardinal points and planes are exceedingly useful because they simplify computations by replacing a complex, almost unmanageable system by points at which all the refraction can be considered to occur, or more graphically, by thin lenses whose laws are simple and easy to handle.

Irrespective of the distance from the rear surface of the lens to the focal point in parallel light (B.F.) the equivalent focal length (E.F.) of a lens is defined as the distance from the second nodal point (cardinal point) to the second principal focal point (Fig. 5).

We are familiar with the fact that even with infinitely distant objects the image size is proportional to the focal length of the lens used. The 50-mm lens on miniature cameras will yield an image one-third the size of that formed by a 6-inch lens.

Now, it is a most unfortunate fact that the cardinal points have positions de-



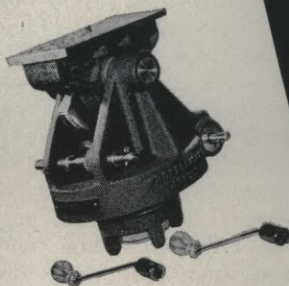
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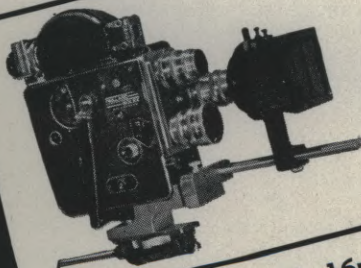
### GEAR DRIVE

The head, made of Dow Metal magnesium, weighs but 5 1/2 lbs. and is interchangeable with the Friction type head. It handles all types of cameras. Snap-on metal cranks control pan and tilt action from both sides. Worm - driven gears are Gov't spec. bronze.

Friction Type Head on Standard Tripod Base and Collapsible Adjustable Metal Triangle

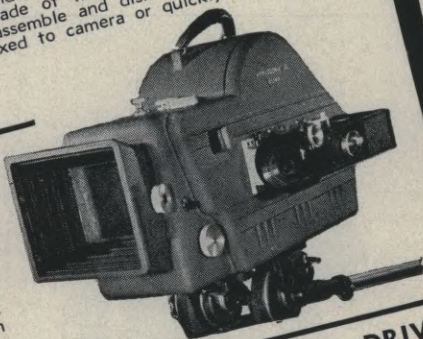
## SUNSHADE & FILTER HOLDER COMBINATION

For use with Bolex and Cine Special 16mm. cameras. Holds two 2" sq. glass filters and 2 1/2" round Pola Screen with handle which can be rotated for polarization. Covers all lenses from 15mm. to 6" telephoto and eliminates need for various filters. Precision made of the finest materials. Compact, simple to assemble and dismount. May be permanently affixed to camera or quickly detached.



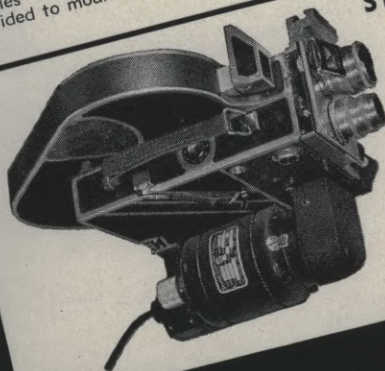
## BLIMP for EK 16mm. CINE SPECIAL

This Blimp constructed of Dow Metal magnesium, is thoroughly insulated to afford absolute silent operation. Exclusive features: Follow focus while camera is operating in blimp. Blimp takes synchronous motor drive which couples to camera. A dovetail bracket is provided to mount an erect image viewfinder.

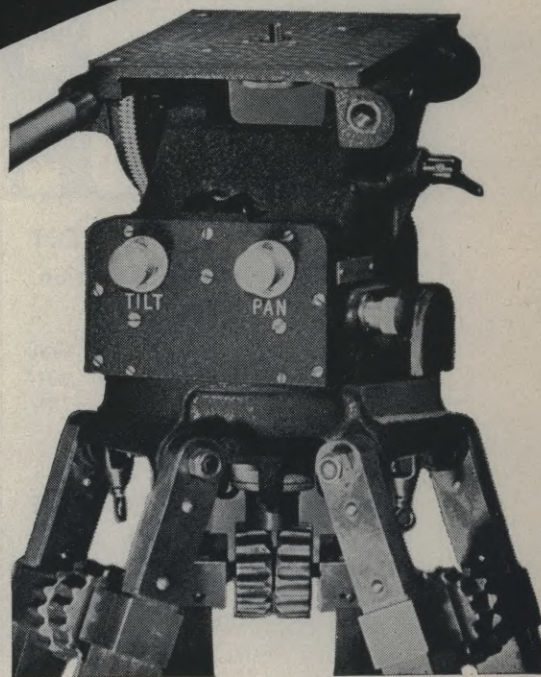


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This motor will run in synchronization with either 16mm. or 35mm. sound recorders. It is provided with mounting platform which permits removal of magazine while camera remains mounted on motor. Drive coupling attaches to spring-steel drive of camera and is mated to spring steel arm drive of motor gear box. This assures that camera mechanism cannot be damaged if a film jam occurs as the spring steel arm drive will shear. This is easily replaced. A knurled knob on motor armature permits rotating for threading. "On-Off" switch built into base. Platform base threaded for 1/4" and 3/8" camera tie-down screws. Rubber covered cable with plugs included.



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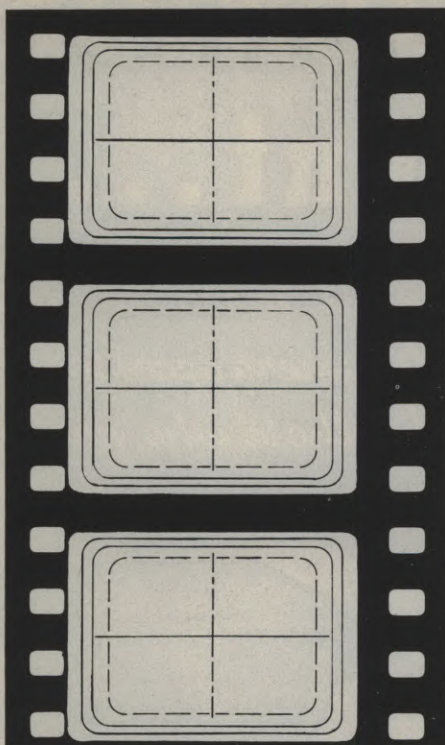
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pendent on the refractive index of the glass comprising the lens. Expressed in other words, each color has its own cardinal points which can be distinct from those of any other color. Now, if the lens is color-corrected axially, i.e., if the red and blue colors unite in one focal point on the axis, and if the nodal points in the two colors are different, automatically the lens must have different focal lengths in the two colors. This is shown in Fig. 6.

However, these different focal lengths, as we saw previously, mean differently sized images: that is to say, the magnification will be different, depending on the color (Fig. 7). It is for this reason that this second type of chromatism is spoken of as chromatic differences of magnification, or lateral color.

In a lens afflicted with this aberration the points in the margin of field are drawn into spectra, or rainbows. This particular aberration is most annoying even with black-and-white film, for it quickly sets the limit of usable field by producing a graded soft focus near the margins.

In the correction of this aberration, advantage is taken of the fact that some lens systems will give a spectrum with the red end closer to the axis; while others will give a rainbow oriented the other way around. In the correction of lateral color, then, systems of these apposing characteristics are balanced against each other until a satisfactory compromise is found.

We have now seen the two types of pure chromatic aberration—longitudinal chromatic aberration and chromatic difference of magnification. The former, the simpler type, is manifested by the ab-

sence of one single focal point for all colors, with the existence of a distant point for each separate color. This is a very troublesome aberration and is corrected in all but the most inexpensive lenses. These lenses can be spoken of as being "color-corrected" only to the extent that there is little or no shift of focal point with color.

This aberration is in theory independent of the aperture of the lens, though in practice its effects will be mitigated by stopping-down, for then the effective depth of focus is increased and the image is less sensitive to improper focus. Longitudinal chromatic aberration is corrected by combining a positive lens with a negative lens of higher refractive index and dispersion and of such power that the dispersion of the positive lens is annulled, but its convergence not canceled, so that a union of the red and blue colors occurs on the axis.

The second chromatic aberration is more complex and manifests itself in differently sized images in different colors. This chromatic difference of magnification is troublesome even in black-and-white photography, and the best lenses are corrected for this aberration.

Only the photographic objectives designed with this aberration pared to tolerable limits can be spoken of as "full color-corrected." This aberration is proportional to the image height, thus becoming worse toward the corners of the picture. Stopping down the lens is without effect on this aberration. It can be corrected by employing combinations of elements of opposing tendencies, so that one set cancels the effects of the preceding.



"Eddie never believed in using a telephoto for closeups before."



The corrected lenses of the reputable makers have all been designed with this aberration in mind and can justly be spoken of as being fully color-corrected. However, it is well to remember that nothing perfect is manufactured, and that with the most refined tests it might be possible to demonstrate some lateral color with the most nearly perfect lens made. This would be without significance, however, since the test necessarily would be artificial and would not correspond to the conditions of use of the lens. If the longitudinal chromatic aberration has been corrected, and if the lateral aberration cannot be detected on the film, for all practical purposes the lens is "fully corrected."

Full color-correction is as essential in the best photography and projection with black-and-white emulsions as it is with color film. The effect of lateral color in the case of the former is to create a soft focus effect toward the margins, while with color film registration difficulties are the consequence of this aberration.

Color photography and projection has introduced no new element into the design of good objectives. With color film the color aberrations, particularly lateral color, become visible as color defects. The best lenses have always been fully color-corrected.

## LIGHTING HOME MOVIE INTERIORS

(Continued from Page 365)

right in the home when ordinary room lights are turned on. It is the aim of the cameraman to reproduce these effects to some extent in his photography, using photo lamps that are twenty times brighter than home lights. This sounds like a problem in mathematics but, in practice, due to the strongly concentrated light needed for color film and the narrow brightness range which the film will handle, it will be found that a filmer must compromise in many ways.

Shaded areas should receive at least 25% as much light as do the highlighted parts of the scene. (The contrasts in ordinary room lighting are sharper.) The situation is further complicated by the fact that the main light sources are *not* the room lights, but powerful movie lights which must be located outside picture area. Each movie light casts a shadow and these shadows may belie the intended impression if, for example, the shadow of a home lamp, (shown in the scene as the main source of light), is projected upon a background wall.

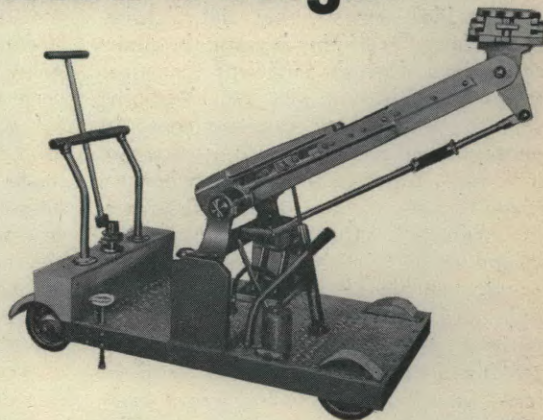
To be good, the lighting must be convincing, and so tell-tale errors such as unwanted or multiple shadows should be eliminated. This can sometimes be done by raising the lights, but it is a

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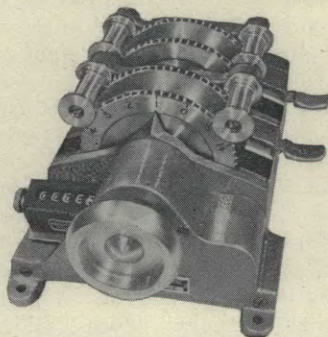


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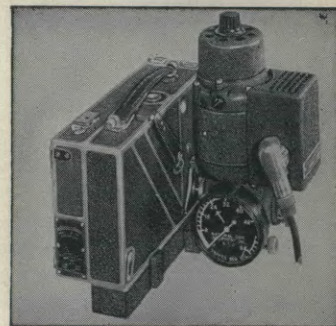
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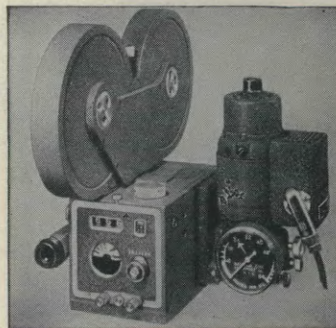
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bad practice to try to correct the evil by pouring more light on the background walls. Instead, the best procedure lies in moving the furnishings of the set, the players, and the room lamps, away from the wall. Thus, the unwanted shadows will fall upon the floor where they will not be noticed.

The idea persists that flat lighting is best for color filming because the colors themselves furnish sufficient contrasts to provide pleasing pictures. Assuming this to be so, how can sequences be photographed in flat light in a home and look right to us on the screen, when we know that usual room lighting is extremely contrasty? Moreover, color plays a secondary part in vision because most of us are capable of admiring nuances of light and shade falling upon objects—without noting their color. It is unreasonable to expect an audience to adjust itself to a deluge of color *minus* highlights and shadows in scenes so familiar as those made in a home. Flat or shadowless lighting, (coming from the general direction of the camera), may be suited to occasional scenes, but it is patent that strong patterns of light and shade should predominate throughout story sequences filmed indoors.

And yet, hard and fast rules cannot be set down since many and varied moods can be created in the screen picture by means of lighting alone. High-key lighting is suited to gay, frivolous or otherwise undramatic sequences. General front lighting and a bright background together with full exposure to the film, and the presence in the scene of light-colored clothing, drapes, furniture and rugs—all will assist in establishing a happy mood. Flatness is avoided by the use of side-lighting and back-lighting in such setups.

Dramatic scenes depicting dignity, sorrow or conflict are usually photographed in medium or low-key lighting. This is produced by directing the light upon the actors and key objects in the scene, and leaving the backgrounds and non-essential parts of the picture area rather dark. Thus, the illuminated parts of the scene are set off by velvety shadows and the audience must concentrate its attention in a dramatic sequence for example, upon the faces of the actors since there is nothing else on the screen at which to look. The mood is one of brooding and suspense.

These are some of the thoughts which will be in the mind of a moviemaker as he approaches the task of setting up lights for filming indoors. His work will be limited in scope by inflexible conditions which will surround him and hem him in on every side. For instance, he may not be able to move the camera as far back as he likes for a long shot—room dimensions. And even if he can

move back, he probably cannot pour as much light on the scene as he wants to—"juicing" problems. If given to wishful thinking, he might conceivably sit down in the middle of a clutter of movie lights, extension cords, disarranged furniture, to think of all the beautiful shots he would *like* to make, but cannot. That will get him nowhere, expeditiously.

Such a thing could not happen to John Q. Moviemaker who would have been thinking about the shooting sessions for weeks, turning his mind to solving all of the problems beforehand. Many nooks and corners about the house can be used as sets, and he can think of ways in which to light them up so as to follow the requirements of the script. The action of the players, entrances and exits, the breakups in camera positioning for long shots, medium shots, and closeups, interchange of lenses, the use of lap-dissolves—everything—right down to the last detail, is clear in his mind. When does he plan all this? Oh, riding back and forth to work; during moments which he steals from his daily tasks, or, perhaps, in bed just before he falls asleep at night. The point is that he is right in there pitching and the job will get done principally because he wills it so. His is the approach *par excellence* to any kind of moviemaking.

An acceptable set of lights for home filming consists of three or four reflectors using No. 2 photoflood bulbs, four spotlights having 500-watt projection bulbs or better and, in addition, some smaller spotlights which will come in handy for illuminating small areas. All lights should be on stands and many lengths of heavy electric extension cords will be needed.

It would not be possible to use all of these lights at one time without blowing fuses—but, it might be desirable to set up, say, three floodlights for a scene, then, in the next scene, a long shot, use four

spotlights so as to project light into the area.

Inexpensive substitutes for reflectors and spotlights are the reflector flood and reflector spot photoflood lamps used in clamp-on units. These are handy because, by means of the clamp, they can often be positioned in otherwise inaccessible places. But for general use, a filmer should not depend upon a chair back or other casual mounting surface. Instead there should be substantial lamp stands affording ample elevation upon which to clamp the lights. Without the flexibility provided by the stands, the clamp-on units are bothersome in the extreme.

The average indoor scene will have a depth of about ten feet. This means that the distance from the actors or foreground objects, which get the benefit of the main front lights to the background walls will be ten feet more or less. Light strength falls off sharply, so much so that, if the distance from the main lights to the actors is ten feet, and the wall and background objects are another ten feet farther back, the background objects and wall will receive only 25% as much light as the foreground. (Light strength decreases to one-quarter when the distance it must travel is doubled.)

For this reason, it is necessary to illuminate the background independently of the foreground. This is done by placing a spotlight or a floodlight as near to the background as possible and directing its rays on the underlit area. It may be necessary to use more than one lighting unit in this way if they cannot be positioned close and still be out of the picture area.

The location of the main light will depend upon the effect which the cameraman desires to create in a particular scene. This effect will establish the mood or "key" and thus the main light has come to be known as the key light.

## Anso Color Film For MGM Cameras

TO ENABLE Metro Goldwyn Mayer get off to a flying start with the filming of "The North Country," Anso shipped first lot of Anso Color film for the production by air aboard Flying Tiger air freight lines. Production is first employing newly developed color filming method utilizing Anso Color negative and positive. Robert Surtees, A.S.C., directed the photography.





If the establishing shot (long shot) has shown that there is a table lamp at the right, then the key light should fall quite noticeably from that direction. There is no reason why it must be the exact direction. Artistic licenses will permit the movie light to be raised or lowered or otherwise adjusted without destroying the illusion that the light is coming from the home table lamp.

Inasmuch as the key light will project shadows, a "fill light" is employed near the camera, (usually on the side away from the key light), and this illuminates the shadows on foreground objects. In color filming, the shadow portions should receive at least 25% as much light as the highlighted areas, or the shadows will have a black opaque look.

Backlighting will point up contours and will provide a pleasing, well-modeled effect which will separate the foreground from background objects. Spotlights should be placed above and slightly to the rear of the foreground actors. While the lights are trained on the actors, they should not shine into the camera lens. Movie amateurs have trouble keeping light stands out of camera range when they are trying to create back-light effects, so they usually compromise by placing the lights high up and to the extreme side of the actors, rather than in back of them.

As the lights are being adjusted, the scene should be scrutinized carefully in order that all lighting errors be corrected or eliminated. These are numerous and some are hard to detect. They will be described, and suggestions regarding their cure will be given in a subsequent article.

## RANGERTONE RECORDER

(Continued from Page 358)

son of MPO produced for the State Department, employing the Boston Symphony Orchestra and Sergei Koussavitzky. Young & Rubicam advertising agency was responsible for another milestone. Portability and compactness were at a premium in making "The Pharmacist's Mate," shot aboard the submarine Sawfish for a Pulitzer Prize series TV show. The Rangertone magnetic recorder was chosen for the job. The March of Time has recently been making a documentary deep in coal mines using the Rangertone. Here storage batteries provide the power for both camera and sound equipment.

Quarter-inch magnetic tape is more than just another way of getting sound for motion pictures; it leads to other advantages. The normal playback characteristic of the tape gives emphasis to



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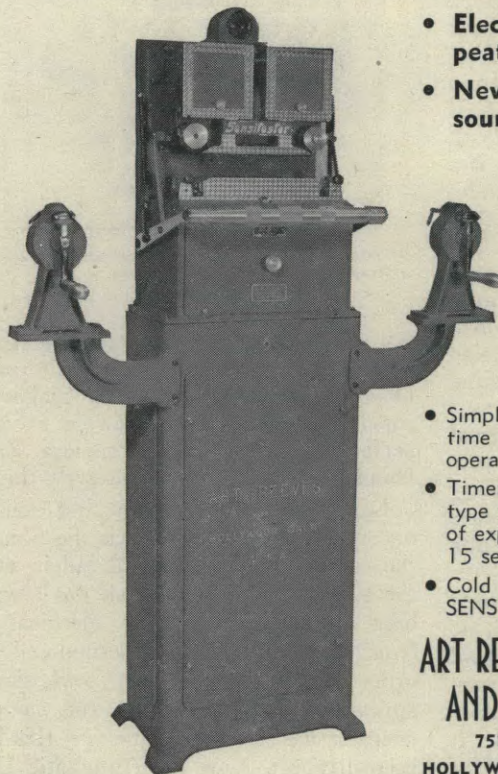
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high which is just where film sound is deficient. So, by judicious coordination of these complementary characteristics, a very smooth final sound print is obtained with a minimum of phase distortion. One of the best equipped government film laboratories found the cross modulation resulting from the magnetic tape method to be down as much as 37 dbn. Such quality requires, of course, close coordination in the processing of the film as well; but most of the major laboratories have undertaken to give their customers the benefit of this quality.

Now Cue Editing has been added to Rangertone techniques. As the name suggests, this is a method of using tape cue tracks to edit the original tape recordings and wind up with a continuous tape recording matched to the final edited picture. This original may then be used for the final transfer and mix to get the negative for making the composite prints. This means that transfers have been reduced to a single recording from original tape to final film negative. The steps are as follows:

1. The original tape recording is sequence-cut to the good takes.
2. These good tape takes are then transferred to a direct positive film work print.
3. This work print is fine edited to the picture.
4. This edited sound work print is then transferred back to a cue tape, quarter-inch magnetic.
5. This cue tape is then used as the guide in the Rangertone Cue Editor for matching the original tape to the cue.
6. The final edited original tape track is then used in synchronous playback for the final mix to negative film.

In step six, a single transfer from the original tape is made to the final negative sound track.

The Cue Editor illustrated here, is a double-tape playback unit which handles two tapes synchronously, whether they are moving forward or back. As the cue tape and originals should wind up of the same length, it becomes an easy matter to make this final cutting which corresponds in many ways to the cutting of the negative sound track to an edited work print.

The ability to play back this original edited tape with the picture gives producer and client an excellent opportunity to determine the complete effectiveness of the presentation before the final mix is made.

As the work print will never be used for its sound quality in this method, no special care need be taken to avoid scratches; and no de-blopping is necessary. Furthermore, if a mistake is made in the editing or a new plan is made, it is not generally necessary to call for another piece of work print. All that

need be done is to substitute blank film for the missing frames to ensure that the timing will be correct on the final cue tape. Then the cue editor will have no difficulty in making the final bloopless original tape takes into a well rounded smooth continuous track of the entire reel. Furthermore, minor adjustments, forward and back may be made on the cut tape if synchronous runs with the picture show that this is necessary.

The Glen Glenn Sound Company of Hollywood, which has now concentrated all its original sound recording in the quarter-inch tape system, has just completed a remarkably planned sound track which enables a crew to go out anywhere and be in action in a matter of minutes on location, with both camera and magnetic sound.

"We never did live sound before we got our Rangertone Lip-Sync equipment," was the way one busy film producer summarized the facility that this new quarter-inch tape method has made possible. Instead of just post-narration, others have come to realize the dynamic qualities of natural sound with picture.

For the past year, Horace Heidt has originated the sound for his travelling Youth Opportunity Radio and TV Program on a tandem of Rangertones. It has been on this series that many of the fine points in winding up with top quality sound on film have been evolved.

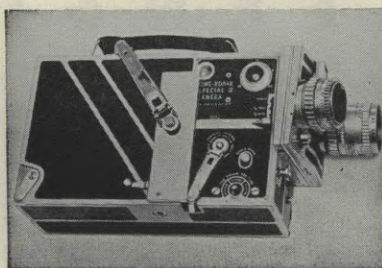
The Gene Autrey, Flying A pictures are another highlight in this new Rangertone technique. Some other users are: Boy Scouts of America, Julian Bryan, International Motion Picture Service, Knickerbocker, Vernon Lewis, Education Division—Puerto Rico, Saul Heller Films, Telenews and Unity Films. In the New York area, Synchrotone is renting Rangertone equipment. A complete equipment is being readied to go to the Israel Motion Picture Studios in Telaviv.

Studios and laboratories where producers may send their tapes for transfer to sound film includes the following:

George W. Colburn Laboratory, Inc., 164 N. Wacker Drive, Chicago 6, Ill.; Crawley Films, Ltd., 19 Fairmont Avenue, Ottawa, Canada; General Pictures Productions, 621 6th Ave., Des Moines, Iowa; Glen Glenn Sound Company, 6624 Romaine Street, Hollywood 38, Calif.; Holly Smith Pictures, 106 South Church St., Charlotte, North Carolina; Precision Film Labs, 21 West 46th Street, New York 19, N. Y.; Reeves Sound Studios, 304 East 44th St., New York 17, N. Y.; Universal Recorders, 6757 Hollywood Blvd., Hollywood.

These laboratories are also in a position to advise in the use of the Rangertone System, as is of course Rangertone, Inc., 73 Winthrop Street, Newark 4, N. J.

## Makes Perfect Lap-dissolves



YOLO Automatic Dissolve attachment installed on Cine Special camera.

AN INTERESTING gadget for the Cine Special camera is the Yolo Automatic Dissolve Attachment, which makes it possible for any cameraman to execute perfect lap-dissolves in the camera. Each fade is of equal length and exactly timed.

Lap-dissolves are made by first executing a fadeout, winding back the film in the camera, then making a fadein over the same footage. The trick has always been to make both fades identical in length and properly superimposed in order to give the dissolve professional appearance. Except where the camera operator has had much practice, this has been difficult. Now the Automatic Dissolve takes out all the guess work.

All you have to do is press up on a lever and hold it until the camera stops. Then wind back film 48 frames, hold the lever down, and start the camera again. The shutter will gradually open in a fadein occupying the identical frames of film as were exposed in the fadeout. You can make a dissolve from a shot at one camera speed to a scene made at a different speed. And it is equally easy to dissolve from stop motion to slow motion.

Installation of the attachment does not preclude making fades and dissolves manually as before. The shutter lever may be operated independently.

Attachment is easy to install. There are no holes to drill in camera, and the only modifications necessary are removal of notches on camera's variable shutter adjustment lever, and a slight adjustment of backwind crank to permit it to clear the attachment housing. With attachment in place on camera, camera will fit the regular Cine Special carrying case, as before.

Designer and manufacturer is Joe Yolo, professional cinematographer, whose Hollywood address is 5968 Santa Monica Blvd.



## IS ORGANIZATION THE ANSWER?

(Continued from Page 364)

publication, an excellent idea which might be adopted here in America. It has to do with A.C.W.'s recently inaugurated plan for aiding in the organizing of Cine Circles. Quoting from A.C.W. for July, the Editor wrote:

"So many lone workers write to us to ask if we can devise some way for them to get to know each other. For various reasons they do not want to submit to the discipline of a cine society. They prefer to make their own films instead of assisting in club productions, but at the same time they would welcome the opportunities for friendly discussions and exchange of views that a society provides.

"We hope that the A.C.W. Cine Circles will help to satisfy that need. This is how the circles will operate." The writer then went on to explain that in the beginning a notebook will be circulated among members of a Circle. Each member will write something about himself and the film he is making or has made, or he may throw in a problem for discussion, and perhaps add a snapshot of himself. This book is then circulated among the Circle's entire membership; the members thus come to know each other by correspondence, with the possibility of eventually forming discussion groups. The object of the preliminary circulation of the notebook is to enable the members to know each other, learn which is a beginner and which is the advanced worker, thus leading to the *ultimate formation of Circles composed of members all on the same level of experience or activity.*

In its August issue A.C.W. reports that at the time of going to press, sufficient applications had been received from amateurs to form 17 Circles of twelve members each. Since then, we learn, more than 40 "leaders" have started the formation of Circles in the British Isles alone.

The foregoing, of course, deviates from the core of our suggestion set forth in the July issue—that what was needed was more amateurs working together collectively in making movies. However, A.C.W.'s new and revolutionary step may be the very thing, if carried forward in this country, that will reactivate amateur movie makers here and bring active groups together for the purpose of making worthwhile pictures.

And so we rest our case for the present, that we may have time to receive additional reaction from our readers.

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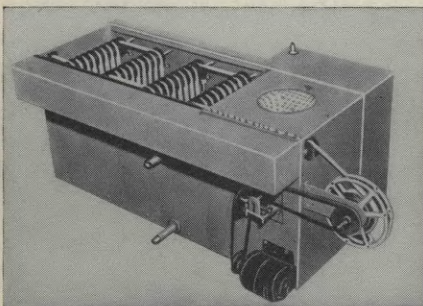
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## By LEIGH ALLEN

**Making a TV newsreel** pay its way is one of biggest problems of TV stations throughout country which feature newsreels as regular program material. Production costs are biggest headache. However, the problem appears to be solved in the recently announced working agreement between United Press and 20th Century Fox's Movietone Newsreel.

**Jerry Fairbanks'** video film making activities are spilling over and across the



**NOVEL MINIATURE** setup for TV commercial film produced by Video Films, Detroit, for Gordon Baking Company. Instead of usual gondolas, the wheel revolves with twelve tiny loaves of Silvercup bread. A travelling matt shot was used to make milk bottles appear descending into moving loaves to illustrate Silvercup's claim that "More than a pint of whole milk goes into every loaf!"



street on Sunset Boulevard, Hollywood, to the Rockett Studios, where Fairbanks has leased space to accommodate his rapidly expanding TV film production program.

**August Video Film Production:** The following cameramen were actively engaged in Hollywood in photographing films for television during the past month:

LUCIEN ANDRIOT, A.S.C., "Amos 'n Andy" show, Hal Roach Studio.

WILLIAM SICKNER, A.S.C., William Broidy Productions.

STEWART THOMPSON, A.S.C., Arizona Motion Picture Corp.

ALAN STENSVOID, Cathedral Films.

LESTER WHITE, A.S.C., Jerry Fairbanks-Official Films.

JAMES VAN TREES, A.S.C., Filmcraft Productions.

JACK JOHNSTON, New World Productions.

PETER O'CROTY, Peter O'Croty Productions.

RAY FOSTER, Paul Parry Productions.

JACK MACKENZIE, A.S.C., Revue Productions.

WALTER STRENCE, A.S.C., Roland Reed Productions.

PHILIP TANNURA, A.S.C., Roland Reed Productions.

PHILIP TANNURA, A.S.C., Showcase Productions.

JOSEPH BIROC, A.S.C., Snader Productions.

CLARK RAMSEY, Superman, Inc.

WILLIAM WHITLEY, Superman, Inc.

GORDON AVIL, Television Associates.

ELMER DYER, Adrian Weiss Productions.

BENJAMIN KLINE, A.S.C., Frank Wisbar Productions.

KENNETH PEACH, A.S.C., Ziv Productions.

**Producers** of films for TV have been jolted with rumor that nearing perfection is sight-and-sound on tape, meaning, of course, both the picture and sound recording magnetically on tape. Idea could wreck a lot of video film production organizations; but its not likely. Because of the need for editing, pictures would have to be shot photographically on film first, later transferred to tape for release on the air.

**Matching** the Hal Roach Studios in Culver City in importance as a TV film production center, is the recently refurbished Eagle-Lion studio in Hollywood, where more than 30 motion picture and video film production companies are presently set up for motion picture production.

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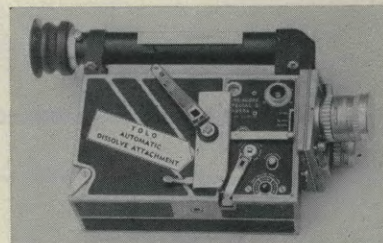
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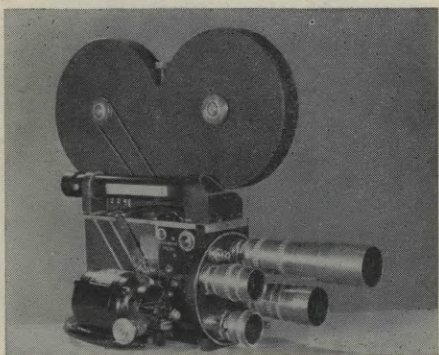
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## TO PROMOTE THE SALE OF CHINAWARE

(Continued from Page 353)

ment it seemed that love would triumph. The reluctant bull took a few steps towards her, bringing down a tableful of china amid loud cheers. About 500 feet of film had been shot of the incident. Out of this some 25 feet showed real action and this footage, combined with previously shot cut ins, made a convincing sequence in the final film.

In hunting out details for the historical side of china making, there were fortunately many old prints available, and it was easy enough to recapture the atmosphere of the china factory of past years.

Perhaps the most difficult of all sequences to film successfully was one showing a succession of famous pieces of Worcester China from 1751 to the present day. Mostly the pieces were shown being used or handled by people of the period. One dinner service, ordered by King George III in 1788, was filmed in a house in Curzon Street, London, which was furnished and decorated in the exact style of the period. Handling a service supplied in 1945 to the Indian Maharajah of Baroda, was a charming Anglo-Indian girl, 16-year-old Isabel Mohammed, while to end this sequence special shots were obtained of a set of china presented to Princess Elizabeth by the citizens of Worcester, when she married the Duke of Edinburgh in 1947.

For the shots where china plates and ornaments appeared alone, almost every camera trick was employed to bring movement and interest to these otherwise static objects. Rotating turntables, lighting changes, tracks, superimpositions—all were used, and what might easily have been little more than an illustrated catalogue has been turned into a swift moving attention-holding sequence.

"The Doctor Ordered Clay" was filmed throughout with London-made Model "G" Newman Sinclair 35mm motion picture cameras, using Mole-Richardson lighting equipment and occasionally Photofloods for special shots. Polaroid filters proved invaluable in overcoming disturbing reflections when filming closeups of highly glazed china figures. All sound was post-synchronized, although many sequences were designed so that the picture holds attention and is self explanatory, requiring only suitable mood music.

As much camera movement as possible was introduced into the scenes at the factory, and a rubber-tired truck running on wooden rails, laid in what seemed to be all the most difficult places,

helped to make these smoothly and easily.

But there were difficulties. Parts of the factory are very old, and in one grinding room where a high-angle shot was needed, the rafters up near the roof were covered with inches of white powdered clay, which penetrated lenses and magazines, quite apart from noses, eyes and most other parts of the body. Eventually after long waits for the powder to settle, the shots were successfully made. But it was many hours before equipment was cleaned and ready for the next set up.

Main feature of the factory scenes is a superb statuette of Princess Elizabeth on horseback, in her uniform of Colonel-in-Chief of the Grenadier Guards. Shown in detail is how the figure is first modelled, then cut into fourteen pieces for mould making, and finally assembled, fired and painted. Only one hundred of these statuettes will ever be made, thus assuring their value as a collector's piece in the years to come.

Near the end of the film the spirit of Dr. Wall returns to see with amazement the Worcester Porcelain Factory of today. The final scenes were shot in historic Bath Abbey, where Dr. John Wall is buried. Because gas is still used in the Abbey for illumination, special cables were run in from adjacent buildings and carefully concealed in the central heating ducts in the floor, to power our photo lamps. Tracks were laid for almost the full width of the Abbey in order to photograph a visitor as she

ADV.



"That's Heathcoat—they found out he owns a KINEVOX."\*

(\*Leading portable, synchronous magnetic recorder.)



walked down the aisle and finally stopped to look at Dr. Walls memorial.

Produced for a modest budget but making full use of natural settings and local talent, "The Doctor Ordered Clay" has been accepted for theatrical showing over the Associated British Cinema circuit, the largest British chain of theatres. In the U.S.A., 16mm copies will be distributed from the New York headquarters of the Worcester Royal Porcelain Company. By far the greater part of the output of English Bone China from Worcester comes to the United States.

"The Doctor Ordered Clay" should stimulate even more interest in Worcester Royal ware, showing as it does not only how its manufacture began, 200 years ago, but also the skill and craftsmanship which still goes into the making of every piece today.

## FILM LEADER

(Continued from Page 363)

has been added in the eighth dark frame before the first frame of picture. This is used as an indication to TV directors that the picture will start within normal switching reaction time.

History and development of the leader began in January of 1950, when F. T. Bowdich, SMPTE's Engineering Vice-president, decided that the information which had been submitted to him on the leader then generally in use warranted an investigation.

At first there was some feeling that a special television leader might be produced which would exist as a special-service standard and leave unmodified the old Academy Leader, but it was decided that unlooked-for problems could be avoided by a proper common-use leader design. From the beginning excellent cooperation was obtained from producers, laboratories, projectionists and broadcasters, resulting in the issuance on April 19, 1950, of the first sample leader (in card form) for limited comment and criticism.

Some feeling has been expressed that the leader is "hard to print." As compared with the dupe of a dupe of a dupe sometimes used for the old leader, it is somewhat more difficult. But any good laboratory can do a thoroughly acceptable job without difficulty, and the result is good dressing for a fine printing job.

Master positives of the leader, either 16mm or 35mm, for preparing dupe negatives are available from the Society of Motion Picture and Television Engineers, 40 West 40th Street, New York 18, N. Y.

## OUT OF THIS WORLD!

(Continued from Page 351)

you develop a kind of sixth sense that enables you to plan set-ups and lighting accurately in advance, so that actual time of execution on the set is cut to a minimum," he points out. "The cameraman owes a lot to the Art Director, also—because when sets are skimpy or unimaginatively designed, it's difficult to put quality into the photography. The best we can do is shoot around the set in such a way as to tone down the weak spots by shading the light off them, and build up the strong points by lighting them fully. It keeps you on your toes to make the most judicious use of what you have to work with. It was a pleasure to photograph 'Lost Continent,' however, because the sets were excellent."

Greenhalgh took time off from Hollywood during World War II in order to join the 5th Air Force in New Guinea. He was placed in charge of an echelon of the 5th Combat Team shooting battle-action films. However, his worst casualty was suffered not on the battlefield, but on a Hollywood set. While shooting a charging stampede of 50 Indians for a film appropriately titled "Slaughter Trail," he was trampled by a mounted redskin. In this skirmish he suffered 10 broken ribs, a broken collarbone, and had his lung punctured by a bone fragment. As a result of this accident he was hospitalized for four weeks.

Greenhalgh recently photographed "Sword of Monte Cristo" (reportedly the first feature film to be shot in the new Eastman monopack color negative). Other recent assignments include "Three Desperate Men," "New Mexico," "Miraculous Journey," "Buried Treasure" (filmed in Jamaica), and "Adventures of Casanova" (filmed in Mexico City). He has just completed photography of "F.B.I. Girl," a slick spy thriller, also for Lippert Pictures.

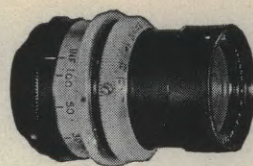
## UNIVERSITY TEACHING FILM

(Continued from Page 356)

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(Continued on Page 379)



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# Current Assignments of A.S.C. Members



Major film productions on which members of the American Society of Cinematographers were engaged as directors of photography during the past month.

★ ★ ★ ★

★ ★ ★ ★

## Columbia

- FAYTE BROWNE, "The Hawk of Wild River," with Charles Starrett, Smiley Burnette, and Jack Maloney. Fred Sears, director.
- W. HOWARD "DUKE" GREENE, "The Brigand," with Anthony Dexter, Jody Lawrence, Anthony Quinn and Gale Robbins. Milton Bren, director.
- ELLIS CARTER, "Sound Off" with Mickey Rooney, Delores Sidener, Sammy White, Gordon Jones, Pat Williams, and John Archer. Richard Quine, director.
- WILLIAM SKALL, "Brave Warrior," (Technicolor) with Jon Hall, Christine Larson, Jay Silverheels and Michael Anasara. Spencer Bennet, director.
- CHARLES LAWTON, "Captain Blood Returns," (Technicolor) with Louis Hayward, Patricia Medina, John Sutton, Genevieve Aumont, Rex Evans, Charles Irwin, Malu Gatica and George Givot. Ralph Murphy, director.
- HENRY FREULICH, "Cripple Creek," (Technicolor) with George Montgomery, Karin Booth, Bill Bishop, George Cleveland, Roy Roberts. Ray Nazarro, director.
- WILLIAM BRADFORD, "The Old West," with Gene Autry, Gail Davis, and Pat Buttram. George Archinbaud, director.

## Independent

- JACK CARDIFF, "African Queen," (Horizon Prodn., shooting in Belgian Congo, in Technicolor) with Humphrey Bogart, Katherine Hepburn and Robert Morely. John Huston, director.
- ERNEST LASZLO, "Three For Bedroom C," (Brenco Pictures) (Supercinacolor) with Gloria Swanson, James Warren. Milton Bren, director.

## Lippert

- GEORGE ROBINSON, "Adventures of Robin Hood," (Roach-Lippert Prodn.) with Robert Clarke, Mary Hatcher, Ben Weldon, Wade Crosby, Whit Bissell. James Tinling, director.

## M-G-M

- ROBERT PLANCK, "Belle of New York," (Technicolor) with Fred Astair, Vera-Ellen, Keenan Wynn and Alice Pearce. Charles Walters, director.
- WILLIAM DANIELS, "When In Rome," (Shooting in Italy) with Van Johnson, Paul Douglas and Joseph Calleia. Clarence Brown, director.
- JOHN ALTON, "The Enemy," with George Murphy, Nancy Davis, Lewis Stone and Billy Gray. David Bradley, director.
- FREDERICK A. YOUNG, "Ivanhoe," (Shooting in London, in Technicolor) with Robert Taylor, Elizabeth Taylor, Joan Fontaine, George Saunders, Robert Douglas, Felix Aylmer and Finlay Currie. Richard Thorpe, director.
- CHARLES ROSHER, "Scaramouche," (Technicolor) with Stewart Grainger, Eleanor Parker, Mel Ferrer, Janet Leigh, Nina Foch,

## AMERICAN SOCIETY OF CINEMATOGRAPHERS

FOUNDED January 8, 1919, The American Society of Cinematographers is composed of the leading directors of photography in the Hollywood motion picture studios. Its membership also includes non-resident cinematographers and cinematographers in foreign lands. Membership is by invitation only.

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Henry Wilcoxon, and Richard Anderson. George Sidney, director.

- WILLIAM MELLOR, "Skirts Ahoy," (Technicolor) with Esther Williams, Joan Evans, Vivian Blaine, Barry Sullivan, Keefe Bras-selle. Sidney Lanfield, director.
- JOSEPH RUTTENBERG, "Young Man In A Hurry," with Russell Nye, Ruth Roman, Denise Darcel, Nina Foch and Donna Corcoran. Mitchel Leisen, director.
- ROBERT SURTEES, "The Invitation," with Van Johnson, Dorothy McGuire, and Louis Calhern. Gottfried Reinhardt, director.

## Monogram

- GIL WARRENTON, "Aladdin And His Lamp," with Patricia Medina, Johnny Sands, Dick Erdman and Billy House. Lew Landers, director.
- ERNEST MILLER, "Lone Star Lawman," with Johnny Mack Brown, and Jimmy Ellison. Lewis D. Collins, director.
- MARCEL LEPICARD, "Win, Place and Show," with Leo Gorcey, Huntz Hall, Gloria

Saunders, Allen Jenkins, Tim Ryan and Darr Smith. William Beaudine, director.

## Paramount

- RAY RENNAHAN, "The Denver & Rio Grande," (Nat Holt Prod., Technicolor) with Edmond O'Brien, Sterling Hayden, Dean Jagger, Lyle Bettger, J. Carrol Naish, and Zasu Pitts. Byron Haskin, director.
- LOYAL GRIGGS, "Shane," (Technicolor) with Alan Ladd, Jean Arthur, Van Heflin, and Brandon de Wilde. George Stevens, director.
- LIONEL LINDON, "Green Gold of Nevada," (Pine-Thomas Prod., in Technicolor) with John Payne, Susan Morrow, William Demarest, gnes Moorhead and Roscoe Ates. Edward Ludwig, director.
- HARRY WILD, "Son Of Paleface," (Technicolor) with Bob Hope, Jane Russell, Roy Rogers and Trigger. Frank Tashlin, director.
- GEORGE BARNES, "Somebody Loves Me," (Pearlberg-Seaton Prod., in Technicolor) with Betty Hutton, Ralph Meeker, Robert Keith, Adele Jergens and Billie Bird.

## R.K.O.

- HARRY STRADLING, "I Want You," (Goldwyn Prodn.) with Dana Andrews, Dorothy McGuire, Farley Granger, Peggy Dow, Robert Keith, Mildred Dunnock, and Ray Collins. Mark Robson, director.
- GEORGE DISKANT, "Day Without End," (Filmakers Prod.) with Ida Lupino, Robert Ryan, and Barbara Whiting. Harry Horner, director.
- RUSSELL HARLAN, "The Big Sky," (Winchester Prod.) with Kirk Douglas, Dewey Martin, Eliz. Ttreat, and Buddy Baer. Howard Hawks, director.
- NICHOLAS MUSURACA, "Road Agent," with Tim Holt, Richard Martin, Mary Jo Tarola, Kenneth MacDonald. Leslie Selander, director.
- WILLIAM E. SNYDER, "The Korean Story," (Edmund Grainger Prod.) with Robert Mitchum, Charles McGraw, and Lala Rios.

## Republic

- WINTON HOCH, "The Quiet Man," (Technicolor) with John Wayne, Maureen O'Hara, Barry Fitzgerald, Victor McLaglen and Ward Bond. John Ford, director.

## 20th Century Fox

- CHARLES G. CLARKE, "Red Skies Of Montana," (Technicolor) with Richard Widmark, Constance Smith, Richard Boone and Jeff Hunter. Joseph Newman, director.
- JOSEPH LASHELLE, "Elopment," with Clifton Webb, Anne Francis, Charles Bickford, Reginald Gardiner and Evelyn Varden. Henry Koster, director.
- KARL STRUSS, "Rose of Cimarron," (Alper-son Prod.) (Technicolor) with Jack Buettel, Mala Powers, Bill Williams, and Lillian Bronson. Harry Keller, director.
- LEO TOVER, "Pride of St. Louis," with Dan Dailey and Joanne Dru. Harmon Jones, director.



• NORBERT BRODINE, "Five Fingers," with James Mason and Michael Rennie. Joseph L. Mankiewicz, director.

• LEON SHAMROY, "Wait Till The Sun Shines Nellie," (Technicolor) with Jean Peters, David Wayne, Hugh Marlow, Helene Stanley, Joyce Mackenzie and Albert Dekker. Henry King, director.

• MILTON KRASNER, "Phone Call From A Stranger," with Gary Merrill, Helen Westcott, Shelley Winters, Keenan Wynn and Warren Stevens. Jean Negulesco, director.

• ARTHUR E. ARLING, "Belles On Their Toes," (Technicolor) with Jeanne Crain, Myrna Loy, Debra Paget, Hoagy Carmichael, Jeffry Hunter, and Barbara Bates. Henry Levin, director.

• LUCIEN BALLARD, "Return Of The Texan," with Dale Robertson, Richard Boone and Tom Tully. Delmer Daves, director.

### Universal-International

• IRVING GLASSBERG, "Bend Of The River," with James Stewart, Arthur Kennedy, Julia Adams, Rock Hudson, Lori Nelson, Jay C. Flippen, Henry Morgan and Stepin Fetchit. Anthony Mann, director.

• MAURY GERTSMAN, "Son Of Ali Baba," with Tony Curtis, Piper Laurie and Susan Cabot. Kurt Neumann, director.

• CLIFF STINE, "Bronco Buster," (Technicolor) with John Lund, Joyce Holden, Scott Brady and Chill Wills. Budd Boetticher, director.

• CARL GUTHRIE, "Francis Covers The Big Town," with Donald O'Connor, Nancy Guild, Yvette Dugay and Francis. Arthur Lubin, director.

### Warner Brothers

• JOHN BOYLE, "Carson City," (In color) with Randolph Scott, Raymond Massey and Richard Webb. Andre de Toth, director.

• TED McCORD, "I'll See You In My Dreams," with Doris Day, Danny Thomas, Frank Lovejoy and Mary Wickes. Michael Curtiz, director.

• ROBERT BURKS, "Room For One More," with Cary Grant and Betsy Drake. Norman Taurog, director.

• EDWIN DUPAR, "The Lion And The Horse," (Technicolor) with Steve Cochran and Ray Teal. Louis King, director.

## UNIVERSITY TEACHING FILM

(Continued from Page 377)

work; translates a lot of things that have to be seen to be understood.

3. They cut down on the amount of teaching time. "Elbow teaching" has always been the rule at Duke, and it takes a lot of men to do it right.

The Duke movie program in anatomy is the most complete in the United States today. A Duke doctor is now at the Mayo Clinic setting up a similar program; another will launch one at the University of California's new medical school this Fall. A special Duke movie on the structure on the hand is now being distributed to all American medical schools. The program is supported by a grant from the National Foundation for Infantile Paralysis, which group is distributing copies of the films.

Medical motion pictures aren't as noisy as westerns or musicals, Dr. Markee says. "We leave out the dramatic details and sound effects," he explains. "We assume that the students are going to be interested. That's why they are in medical school." But Duke's movie makers have become experts at certain special effects. They've worked out shading techniques to show an individual muscle as it gradually becomes paralyzed.

Again, they wanted to show how the structures of the arm fit together. It's easier to show when you start at the surface and work down into the bone. But the wooden model they wanted to photograph was easier to put together than to take apart. So they filmed it being put back together with the camera turned upside down, and then simply reversed the film, end for end, when editing it.

But they have become most skilled at the make-or-break task of editing. "Just like all movies, ours are really made in the cutting room," Dr. Markee says. "The secret is in the editing—in knowing what we want to leave in or leave out and where we want to show it."

Dr. Markee has for several years been one of the leaders in all visual aids in medicine: colored slides, movies, models and drawings. He is a member of the motion picture committee of the Association of American Medical Colleges; adviser to the American Film Institute; and a member of the Motion Pictures of the American Academy of Anatomists.

Whether it's slides or movies, there is always only one goal: to save time. "The only reason for ever teaching anyone anything is to save time," he says.

## "INTEGRATION" PIONEER

(Continued from Page 363)

producer and his associates, with NBC's splendid production personnel and with the product's agency representatives, then I strongly recommend that we continue to "convert" and let the audience dictate which programs they prefer.

Certainly, when we went to work to meet the challenge of converting "The Big Story" from radio to television, the personnel of the Prockter organization found no difficulty in working with and understanding the methods of the film people we brought in to do the pilot picture. Jerome Robinson of the Prockter associates busied himself with casting, and Everett Rosenthal supervised production, handling costs and general preparation. The writer gave me a treatment he had written and I prepared a visual adaptation suitable to Mr. Prockter.

We decided to use 35mm film instead of 16mm, and we selected a major studio

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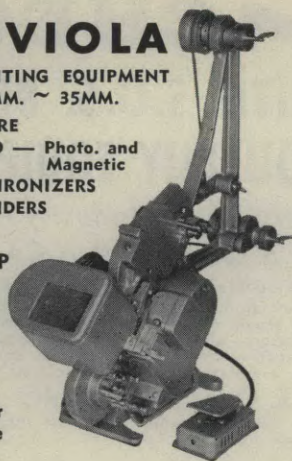
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where we could get first-rate production help and settings designed to our taste. For a crew we used the same staff that had been associated with me in my eastern production work as an independent: George Webber on the camera; Michael Slifka, assistant cameraman; Jack Aichele, production assistant. Arthur Rosenbloom, with whom I had worked on many wartime films at Astoria, left NBC-Fairbanks newsreel and joined us as editorial supervisor. (Today Art directs all film for Prockter's "Big Story" and "Treasury Men In Action.")

There were many problems but they were solved as fast as they arose. Experiences of the movie crew were absorbed by the men from the radio field, and vice-versa. When we finished with the pilot film we could assuredly say that each man had contributed much more than merely a share, and we awaited "the word" from agency and sponsor. That "the word" was favorable is evidenced by the fact that today we are still doing "The Big Story" together.

Indirectly, the apprehension felt by Mr. Prockter in the challenge of converting his "Big Story" to TV led to our adopting the "live-film" integration method. After the pilot film was completed, the agency wanted to do the show "live" since film production costs are higher than live. This posed a problem because essentially I was and still am a film-stage director. I was not familiar with TV production other than films for television. However, I was anxious to try my hand at "converting"—to see how tough it would be for a director not experienced in live TV to make a go of it. Mr. Prockter was sympathetic to my predicament—after all, we were all in the same boat. But it was obvious that a straight live studio show, with no actual location scenes, might lose the flavor of reality—of being "on the spot"—that had made the radio show a success. In short, the problem was one of bringing to the visual show the same scope possible on the radio through the use of words and sound effects alone. The limitations of TV were never more apparent.

After much discussion of the format and after much juggling of budgetary problems, we decided that we would not deviate from the manner of the pilot film production. Film can be edited; television cannot. It was decided to film the portions of the show that required us to establish for our audience that we were on the spot (in the city, at the newspaper office and at other locations called for by the story material).

Mr. Prockter bought a station wagon and I designed roof, front and tailgate camera platforms. We purchased a set of special portable lights and cables

capable of giving brilliance with minimum handling, to enable us to film interior long shots in the newspaper offices or at other locations, using whatever juice was at hand. We had to become portable, mobile and highly productive in a short space of time.

TV film reproduction quality was a major "must." We studied much film on TV and most of it was of poor transmission quality. As I have already pointed out, we had the additional problem of integrating and matching cuts, even closeups, from film to live or live to film, often right in the middle of a dialogue sequence. Due to our tight schedule we could not wait for ideal location conditions but had to shoot on sunny, rainy, dark or light days many sequences and scenes, that had to intercut. We had to shoot night scenes in bright sunlight and always by daylight because our two-day schedule did not allow for any delays. Yet we were determined that the effects, production quality and transmission quality would be of the best when the show was presented on television.

Being the film man in the "conversion" setup, this problem was naturally left in my hands. I worked very closely with George Webber, the cameraman, and with the laboratory officials at De Luxe we discussed the problems pro and con and arrived at certain operating standards to be followed on location and in the laboratory.

We studied the quality of our pilot film on closed circuits and found its transmission, as a film in total length, excellent. This picture had been shot under existing exterior conditions at the scheduled time of production (with no waiting for ideal conditions), and it had been balanced by the expert camera technique of Webber and subsequently the laboratory. But now we were faced with our real problem: the matching of film and live action as to lighting and transmission quality. This was the unknown quantity, and a lot of believability depended on it.

It was our plan that film should never be used as a filler—it should always advance the plot; and we insisted that the audience must not be aware of when we were on film or on "live," because we did not want the story value damaged by an awareness of technical changes. These decisions, made over two years ago, with no standards in filming, laboratory, etc., to go by, might have been just so much wishful thinking. That they did not turn out to be so is a tribute to the willingness of all parties concerned to work together in closest harmony, from cameraman to laboratory technician to TV electronics engineer.

The next step we had in mind was a  
(Continued on Page 382)



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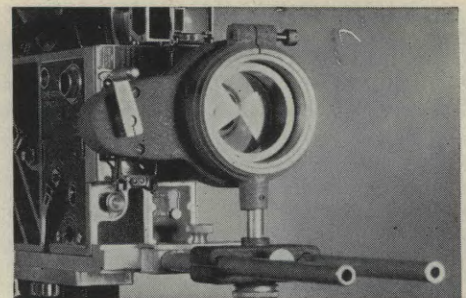
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series of discussions with NBC's lighting  
personnel, but since the show was several  
months from its starting date and since  
each lighting man works in a different  
manner, much as in motion pictures, we  
realized jointly that this was an issue  
to be faced with each individual program  
until we either balanced film and live  
or fell on our faces trying.

We finally set out on the road, filming.  
The pace followed in the actual shooting  
of the film portions of "The Big Story"  
set some sort of a record, I'm sure, for  
movie production. Certainly it was a far  
cry from the traditional location practice  
of scheduling a few scenes for each day  
and changing the schedule to meet  
weather conditions. Two days of shoot-  
ing, then a day of travel for the crew.  
The production assistant would leave  
while we were still shooting and go on  
to the next place to pick up the arrange-  
ments made by our advance man. I  
would fly or take a train, usually within  
an hour or so after the last shot, to the  
next town, go over locations, select  
exact spots, cast doubles and extras, meet  
the next "reporter-actor" for that par-  
ticular show, discuss plot all during the  
intervening day while the camera crew  
and driver travelled in the station wagon  
towards this next location. Then two  
more days of shooting. (In those days  
larger portions of the "Story" were  
filmed and required more time.) This  
routine I followed regularly until our  
show went weekly last March.

The week of the performance this  
was the schedule: Monday through  
Thursday—stage "Big Story" live por-  
tions at our New York rehearsal Hall;  
Friday—block the scenes for camera  
angles, stage dry run, dress rehearsal,  
integrate film and finally go on the air  
(strange-sounding description for a film  
and for live action). Next morning  
(Saturday) we would leave again for  
a week of filming, return and stage  
another show; then a week of script-  
reading, set-design discussions, etc., stage  
another show, and on the road again. It  
was a rigorous schedule, but we felt  
we were pioneering, and the results made  
the efforts more than worthwhile.

To us, at least, our success with "The  
Big Story" has shown the way. Prock-  
ter's "Treasury Men In Action" proves  
that our methods can be duplicated. The  
important point is that quality trans-  
mission of film on television is entirely  
feasible, and the possibility of smoothly  
integrating film and live action is far  
beyond the stage of conjecture. It is a  
reality waiting to be taken advantage of  
by those who are willing to work hard,  
with an open mind, and a desire to co-  
operate with the creative and technical  
minds and hands existing today in radio,  
television and motion pictures.



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# Talking about Movies

... your basic tool  
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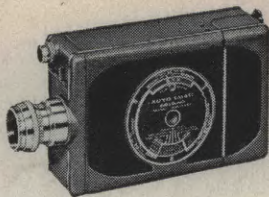
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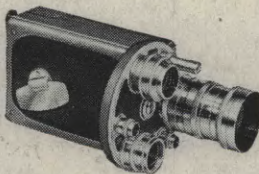
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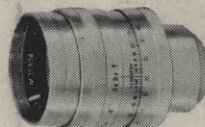
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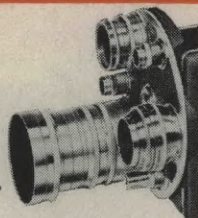


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